FEEDSTUFFS

The Weekly Newspaper for the Feed Industry

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Ask for Reasonable Approach to Drug Dilemma

By GEORGE L. GATES
Editor of Feedstuffs

WASHINGTON — Appeals for a reasonable approach to solving the dilemma faced by feeders and the feed industry because of the Food Additives Amendment to the federal food and drug laws were voiced at the Association of American Feed Control Officials convention Oct. 14-15.

I. S. Riggs, chairman of the American Feed Manufacturers Assn., declared that the Food and Drug Administration's "freeze" on use of certain drugs came as a distinct surprise to the feed industry. The industry, he said, had assumed that these drugs were not food additives as defined by the law and therefore not affected by it.

"FDA is properly interested in the health of the nation," he said. "So is the feed industry, and in addition, the industry is interested in the economic efficiency and stability of the farmer. We are not interested in a scramble for something new and different to put into feeds, but we are vitally concerned with continuing to use additives of unquestioned worth which have not been indicated by research as injurious to health, and wish to continue in the future to make the benefits of proven products equally available to all producers."

Mr. Riggs complimented the feed control officials on their "practical and common sense" approach to the drug problem and urged cooperation toward a "wise and enlightened administration" of the food additives law.

A similar appeal was voiced by D. L. Bruner, executive secretary of the Animal Health Institute. "The one great need today on the part of legislators, regulatory officials, manufacturers, farmers and consumers is to find a reasonably middle ground—an acceptable balancing of safeguards on the one hand and enjoyment of scientific progress on the other."

L. A. Koehler, president of the AAFCO, noted that the amendment is for the public welfare but that "we cannot ignore the great strides made in animal feeding and nutrition through the use of feed additives."

The discussions of current additives problems shared the convention spotlight with some significant changes in official definitions of feeds, including a whole new set of millfeed definitions. (See story on this page.)

Control officials and feed men also heard a discussion of the possibility of coordinating the AAFCO's work in

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Standards Sought For Nutrients and Assay Methods

By GEORGE L. GATES
Editor of Feedstuffs

WASHINGTON — Efforts of the Animal Nutrition Research Council to develop standards for nutrients and standardized assay methods so that experimental results can be more accurately evaluated were demonstrated at the organization's annual meeting Oct. 14.

The program, presented by the organization's technical projects committee, indicated considerable progress on developing a vitamin A standard, some steps forward on vitamin K and at least a foot on the threshold of vitamin E standards.

The organization, which is growing in stature as a coordinating group for furthering the dissemination of detailed information on nutrition, has members representing universities and government agencies as well as technical people from industry. Anyone qualified by training, experience or interest may participate in the organization's meetings.

ANRC has developed assay methods for vitamin D and established a standard chick diet. Development of research control programs is consid-

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CATTLE ON FEED OCT. 1 UP 20%

WASHINGTON — The number of cattle and calves on feed in 21 feeding states totaled 4,766,000 head on Oct. 1—20% more than on the same date a year ago, and 7% below the number on feed last July 1, according to the U.S. Department of Agriculture. USDA said 2,383,000 head of cattle and calves were placed on feed in nine Corn Belt states, plus Texas, Colorado, Arizona and California during the three months ended Sept. 30. This was 21% above the like period last year. For all 21 states covered in the report, 2,647,000 cattle and calves were placed on feed during the July-September period. Cattle feeders intend to market 3,176,000 head of the cattle and calves being fed on Oct. 1 during October, November and December, USDA said. This would be 24% above marketings in the comparable period last year.

FEEDSTUFFS *Features This Week*

FINANCING: Talks from a recent AFMA-sponsored discussion on sound financing for feed companies start on **page 10.**

PELLETING: Results of experimental work on extending pellet mill die life are reported in an article starting on **page 18.**

SWINE PRODUCTION: A complete package offered by a Nebraska feed manufacturer for swine production is described on **page 26.**

FEED PRODUCTION: An Arkansas dealer comments on the reasons behind the construction of a new feed mill. **Page 52.**

CUSTOMER SERVICE: A Wisconsin operation which has expanded its service to customers with mobile feed mills and farm supply "stores" is described on **page 87.**

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Liquidation of Chemell Poultry Operations Under Way in S. E.

By Special Correspondent

ATLANTA — Liquidation of the Chemell poultry operations is under way following federal court acceptance of a bankruptcy petition. (Feedstuffs, Oct. 10.)

The action was taken after it was indicated that the Chemell companies were insolvent to the extent of about $2 million.

When the attorneys for Chemell reported to J. Ellis Mundy, referee in bankruptcy, last week that after more than two months' efforts involving a number of creditor meetings, no plan of reorganization under Chapter 11 of the bankruptcy laws could be submitted, the judge ruled the corporations insolvent and began the task of turning over the fallen empire to the creditors whose claims totaled in excess of $4 million.

With the bankruptcy then an actual legal fact, attorneys, members of the creditor committees and the court began the task of liquidating the as-

(Turn to CHEMELL, page 6)

Narrowing of the Unknown in Poultry Nutrition Shown in Texas Program

By ROGER BERGLUND
Feedstuffs Managing Editor

COLLEGE STATION, TEXAS—The realm of the unknown in poultry nutrition continues to narrow, and new research findings continue to make poultry feeding a more exact science. At the same time, the feed formulator and researcher are presented with new challenges as well as opportunities as additional discoveries lead to the need for still more information.

This situation was fully evident last week at the Texas Nutrition Conference when a dozen talks on a host of topics brought out poultry nutrition information of both longer range and immediate practical importance. (Summaries of reports on large animal nutrition and other subjects will appear in next week's Feedstuffs.)

More than 300 feed and allied industry men, many of them from out of the state, were on hand for the fast-paced program at Texas A&M College. Both guest speakers and Texas scientists presented papers on more than a score of subjects.

• An indication of the way in which the unknown is narrowing was found in a Texas report on results in the isolation of a new factor or vitamin.

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AAFCO Adopts Tentative Terms For Wheat Products

By GEORGE L. GATES
Editor of Feedstuffs

WASHINGTON — New tentative definitions for several wheat products were adopted by the Association of American Feed Control Officials at the organization's annual convention Oct. 15.

The changes, when they come into full effect, will mark the disappearance from the industry's millfeed vocabulary—at least the "official" vocabulary—of a number of product names which have appeared on feed tags for many years.

It is expected that the new definitions will be adopted fairly readily because of the procedure approved by the control officials for entering them in the organization's handbook, the "Bible" of regulatory terminology.

They will be entered as "tentative," which under customary procedures would have delayed full use of the new definitions for a year. However, a resolution was passed at the convention's closing session permitting adoption (as soon as practicable and at the discretion of individual state control officials) of tentative definitions when no official definitions exist.

Another resolution called for im-

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Michigan Dealers Reelect Officers

EAST LANSING, MICH.—Robert McConkey, Durand, was reelected president of the Michigan Feed & Grain Dealers Assn. at the association's annual fall conference at Michigan State University Oct. 15-16.

Ed Bauer, Kalamazoo, was reelected vice president, and Nevels Pearson, Lansing, was renamed secretary-treasurer.

Elected to the board of directors were Ray Bohnsack, Lansing; Mr. Bauer; Stanley Sherman, Saginaw, and William Doyle, Lowell.

The conference included talks on research, management, merchandising and selling. Several feed and grain authorities also provided instruction as dealers heard about market trends in animal agriculture.

Further details on the meeting will be reported in Oct. 31 Feedstuffs.

FEEDSTUFFS

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How's Business?

AN EVERY WEEK REVIEW OF FORMULA FEED BUSINESS VOLUME, INCLUDING PRICE, SUPPLY AND DEMAND TRENDS

Although formula feed demand isn't what it's expected to be when colder weather moves animal production into a heavier feed consumption period, it is holding up at a level even with—or slightly above, in some cases—last year's demand at this time. Cattle feeds are gaining, but their volume still isn't enough to make much headway over losses in demand for the feeding of hogs and poultry. Millfeeds were offered more freely this week and better harvesting weather leveled off soybean oil meal prices. The wholesale feedstuffs price index climbed to 79.1 for the week ended Oct. 14. A week earlier it was 78.3 and a year earlier the index was 79.2. The feed grain index went in the opposite direction—down 2.1 points to 65.2 this week, compared with 64.8 a year earlier. The hog-corn ratio continues its slide, further dimming the feed consumption outlook. This week's ratio was 10.8, compared with 11.5 the week before and 15.4 a year earlier. (Ingredient prices in detail on pages 90-92.)

Northwest

Beef cattle just starting to go into feedlots and growing dairy cattle feed consumption were mostly responsible for some improvement in the Northwest's formula feed business this week. This improvement, however, did not blanket the industry. A few mills reported that the greater volume of cattle feeds only offset losses in poultry and hog feeds.

The most optimistic report came from a mill which had a noticeable increase in business. The pick up in this instance was enough to call for an increase in the plant's crew at the outset of the week beginning Oct. 19.

The general opinion among operators was that business is better now than at the same time last year. Orders are backlogging, requiring production increases.

A slight decrease in feed prices may be in order starting the week of Oct. 19, following a decline in millfeeds and a settling down in soybean oil meal.

New turkey starter feed business is creeping into the picture.

The outlook for formula feed in this region, as well as in others, is a little on the dim side. Lower egg prices aren't helping any and the poor hog-corn ratio is troublesome.

Southwest

No great change took place in the level of formula feed demand this week in the Southwest, compared with the previous week, although a few sales managers thought that business was rather draggy in comparison with the previous period.

Some weakness appeared in demand for hog feeds and egg feeds, but this was offset by greater turkey feed production and by a seasonal upswing in cattle feed bookings and sales. Part of the reason for the relative sales quiet was said to be weakness in prices, which resulted in mark downs of up to $1 on most price cards this week.

Running time was not changed and most mills had five full days of operation. Some, however, exceeded the week's new business in running the fifth day.

Northeast

A 32-hour week again prevailed among most formula feed manufacturers as sales continued to scrape along at a comparatively low level. Consumers apparently feel this is not the time to buy any more than is necessary. There is still some good weather left in October, and corn and soybean prices are expected to work lower.

Farmers are utilizing their pastures because there still is quite a bit of feed left in the fields. However, dairy feeds, to mix with grain on the farms, continued to outdistance eggmashes in sales turnover. Turkey feed demand is fading and it won't be long until just the breeding flocks remain. Broiler feeds did little.

Egg prices continue to hold up, and the $5.06 base price for September milk in the Niagara frontier milk marketing area is 12¢ above the year-ago price. But broiler prices continued weak.

The ingredient market was irregular during the week.

Soybean oil meal was quite strong because of the rain-delayed harvest and both 44% and 50% meal rose $2. Linseed oil meal advanced $3. Meat scraps were weak and off $2.50. Fish meal held steady. Alfalfa meal rose $1.

Southeast

The feed business in the Southeast is not bright at all, and is reported as being on the slow side. Chick placements in Georgia alone, in the last 12 weeks, have been reduced by 2,009,000 or 33⅓%. North Georgia broiler prices range from 14¢ to 15½¢ lb., f.o.b. the farm.

Most feed ingredient buyers continue to buy their major proteins on an as-needed basis, as many believe, due to the slowness of business, protein meals are headed for a decline in prices. At the present time, export interest is holding cottonseed meal and soybean meal prices at their present levels.

Heavy rains in the Southeast within the last week have caused corn prices to increase 2@3¢ bu., with delivered prices ranging between $1.25 to $1.27 bu.

Many of the ranchers in Florida are beginning to put their livestock on feed, which is showing in increased demand for citrus pulp, cottonseed meal and hulls. Florida feed manufacturers are continuing to use more cottonseed meal at this time than soybean meal, because of prices. Two or three of the citrus processing plants commenced operations last week and additional plants expect to be in production on citrus pulp next week in a limited way, with full production not expected until the latter part of November.

Central States

A sort of a "status quo" situation appears to be maintained in the central states. Admittedly, demand for formula feed is on the slow side when compared with the early fall of any recent year—a situation which in all probability has been brought about in part by the terrific size of this year's corn crop.

When the Sept. 1 government crop estimate came out on this cereal and showed a prospective production of about 600 million bushels more than last year, very few in the feed trade

(Turn to MARKETS, page 95)

Top of the Hopper

SOME FEED MEN FEEL that higher interest rates and a general tightening of bank credit will put a brake on expansion of agricultural production, particularly in poultry. With the prime interest rate now up to 5%, they feel that there definitely will be a cutback in the availability and use of money for agricultural projects.

The recent troubles in the broiler industry will deter loans, it has been said. But, in addition, the general situation of high interest rates and restraint on bank credit may slow some operations in all phases of animal agriculture. Evidence of some difficulty in getting financing for cattle feeding as well as other operations has been noted recently.

However, while this situation is pointed out, others tell of at least some big new broiler projects which are going forward.

Another aspect of the tighter bank credit situation is that more feed customers probably will want to make greater use of suppliers' money—adding to the financing problems of feed firms.

GUARANTEED MINIMUM PRICES by poultry processors are the newest wrinkle in the broiler industry in Texas. Contracts on some integrated projects are reported being made with minimum price guarantees of 14¢ lb. Others are said to be offering a price of ½¢ over the current market, with a minimum price of 14½¢, and the premium guarantee good right up to a 17¢ market level. Evidently some processors feel that at current low prices marked irregularities in the supply of birds for their plants might develop in the year ahead, and they would like to assure part of their needs, at least, to maintain a relatively uniform level of operations.

REPORTS OF NEW EGG PRODUCTION operations on a very large scale continue to come in. For one thing, there have been reports of more feed manufacturers getting into their own livestock and poultry feeding operations—not just contracting—in the Midwest as well as other areas. Now a couple more midwestern feed manufacturers are said to have extensive laying operations of their own.

Meanwhile, the Poultry Tribune tells of use of the old Armour packing plant in Denver as an egg factory; it will have 100,000 birds in colony cages by the end of the year and eventually maybe 300,000. A food chain is handling the marketing with processing equipment located in the Armour plant. In California, the California Farmer notes, there is a fairly new operation which now has well over 100,000 layers and eventually may go to 360,000. Twenty-three laying houses designed for 8,000 birds each are complete or under construction currently. A produce firm in the Southwest now has its own 50,000-layer operation and may expand eventually to 150,000.

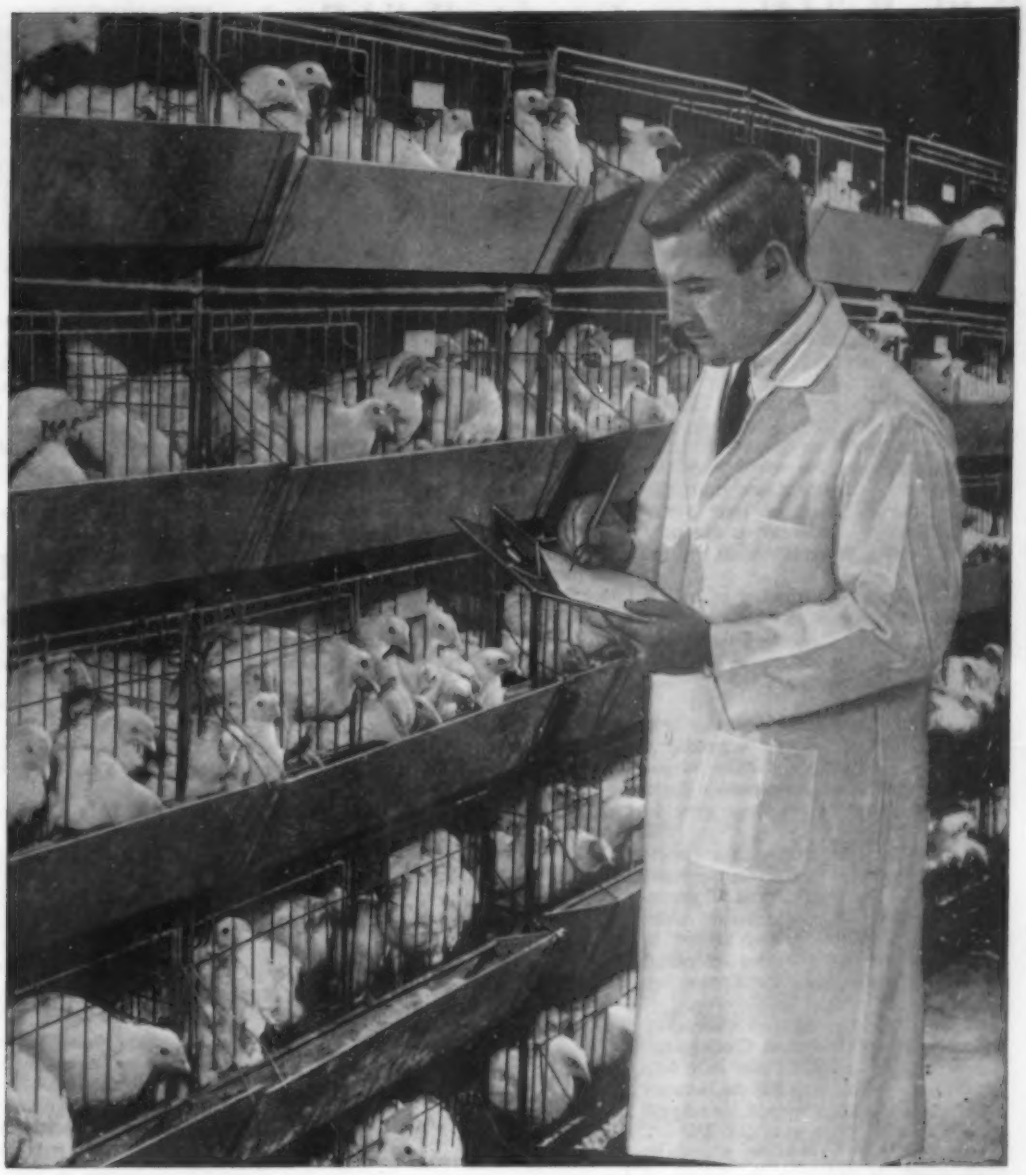
COMMENTS ON THE TREND toward complete integration were part of a discussion by Don Turnbull of the American Poultry & Hatchery Federation in a recent association publication. He discussed the report that a very large Carolina egg producer had been authorized by a major franchise feeder to hatch his own chicks.

"How does the hatcheryman fight back?" Mr. Turnbull asks. "He can become his own chick customer. He can go into egg production himself. He can make his own feed. Thus, as we move toward integration, we find every-

(Turn to TOP OF THE HOPPER, page 92)

Peter Hand

DOWN ON THE FARM



To help you produce better feeds, Peter Hand Research Farm conducts thousands of feeding experiments on poultry, swine and cattle. Latest scientific developments —vitamins, antibiotics and additives—are evaluated.

New formulations are tested under every-day farm conditions before they are recommended to feed manufacturers. The farm is comprised of 450 acres and more than a dozen buildings.

Scientists with specialized experience in poultry and livestock nutrition direct all work at the farm. For the answer to any specific feed problem, look for the answer *first* from Peter Hand research.

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Cattle Build-Up Seen Near End

URBANA, ILL.—The rebuilding of ranch herds is about finished, and the supply of cattle available for feeding is apparently at an all-time high, according to Prof. L. H. Simerl, agricultural economist at the University of Illinois, in his latest "outlook" report.

He noted that prices of feeder and stocker cattle and calves dropped $2-4 cwt. during the past few weeks, and may decline more.

"At the beginning of this year, ranchers and farmers had 19,755,000 head of calves under one year old, not counting those being kept for milk. This number was 7% more than the year before, and 4% more than the previous record high of four years before. Most of those calves are now yearlings," it was explained in the report.

"We estimate the number of calves dropped by beef cows this year at around 23 million head. This would be 8% more than last year, and 3% more than the previous record high set in 1955.

"While the calf crop is larger this year, slaughter of calves is smaller.

"Imports of cattle and calves from Mexico and Canada have been a little smaller this year than they were in 1958.

"Prices for fat cattle may work toward a lower level during the next few months. During the past 10 years, average prices of choice steers were highest in September and lowest in February. February prices averaged about 7% lower than the September figures.

"The past year was an exception. Prices of choice steers at Chicago averaged just under $27 from July into December, and around $28 in January and February. Peak month was April, with an average price of $30.33.

"Cattle prices are at an unusually high level in relation to prices of other farm products. Adjustment to more normal relationships probably is beginning."

Turkey Marketing in Canada Up Sharply

OTTAWA — Turkey marketings through registered stations from the beginning of the year through Sept. 5 exceeded last year by 15,800,000 lb., reaching an all-time high of 36,600,000 lb., according to Canadian officials.

Total disappearance of turkeys since Jan. 1 was 48,500,000 lb., or an increase of 20 million pounds over the same period in 1958.

Canada went into 1959 with 18,300,000 lb. of turkeys in storage stocks, and by Sept. 1 stocks had been reduced to 6,400,000 lb.—a disappearance of 12 million pounds. Stocks were reduced 7,100,000 lb. in the same period a year ago.

Last year's turkey crop totaled 125,200,000 lb. dressed weight, and the Dominion Bureau of Statistics estimated an increase in 1959 of 15% or 18,700,000 lb.

Sale of turkeys for the Labor Day holiday this year was the highest on record for that season of the year.

Fish Plants Proposed

MEXICO CITY — A big Japanese company is proposing to invest $25-30 million to build a chain of plants in Mexico ports for the production of fish meal, the newspaper Novedades reports. The newspaper did not name the company, but said the proposition is being studied by the Mexican government.

BEMIS MOVES OFFICES

CHICAGO—The Bemis Bro. Bag Co. at Chicago has moved its offices to the Morton Salt Building, 110 N. Wacker Drive, Room 312, Chicago 6.

Co-op to Build Feed Plant in Colorado

CHERAW, COLO.—A $500,000 plant equipped to manufacture a complete line of formula feeds for cattle, hogs and poultry is to be built here by the Consumers Cooperative Assn., headquartered at Kansas City, Mo., according to Jess Pulliam, manager of the co-op's poultry department.

He said the feed plant will include a laboratory in which feed ingredients will be tested for quality. The feeds will be made in pelleted, crumblized and meal forms.

Annual capacity for the plant has been set at about 25,000 tons on an eight-hour basis. Employment will be in the range of 15-20 persons. Mr. Pulliam announced that the plant will supply feeds for cooperative associations throughout a large area in Colorado and neighboring states. Being owned by the Consumers Cooperative Assn., the plant will sell feed to local farmer-owned cooperatives only. Mr. Pulliam noted that no feeds will be sold direct to feeders. However, CCA will operate bulk trucks, hauling feed directly from the Cheraw plant to farms.

Mr. Pulliam said the plant is to be completed in 1960 and will incorporate a grain bank system.

DRUG DILEMMA

(Continued from page 1)

some way with the American Standards Assn. and a review of nutrition studies made with radioactive tracers.

Attendance at the convention was reported at 277.

Marvin H. Snyder, Charleston, W. Va., was elected president of the association for 1959-60, and E. A. Epps, Jr., Baton Rouge, La., was elected vice president to succeed him.

Bruce Poundstone, Lexington, Ky., was renamed secretary, and R. T. Wetherbee, Burlington, Vt., was re-elected treasurer. New members chosen for the executive committee are R. E. Bergman, St. Paul, and R. W. Ludwig, State College, New Mexico.

Here are summaries of the major talks presented at the convention:

RADIONUCLIDE NUTRITION — Dr. Homer Patrick, head of the poultry department, West Virginia University, described studies made with radioactive elements aimed at learning more about utilization of various feed components. Tests were conducted with chicks and rats.

He noted that while considerable work in radionuclide nutrition has been conducted, data on these studies has not been thoroughly interpreted. Researchers, he said, should recognize that this type of investigation represents an additional "tool", extending the usefulness of those already available to scientists.

Dr. Patrick summarized his presentation as follows:

Animals undergo many biochemical changes in their life processes. These result in stress periods and research is needed to identify these periods.

Young chicks have a biological half-life of calcium of 25 days when on a normal ration. Increased calcium uptake or decreased vitamin D decreases the biological half-life of bone calcium in chicks.

Increasing the calcium or magnesium increases the loss of zinc during the first 24 hours after feeding. Amino acids influence the rate of uptake of calcium and sulfur.

A sudden drop in temperature decreases the loss of sulfur, increases urine production and increases calcium excretion.

Selenium increases sulfur excretion and also retards growth in which methionine corrects the growth retardation effect.

Phosphates influence Zn^{65} retention. Calcium increases the loss of Zn^{65} from the animal.

FEED INDUSTRY COMMENT ON ADDITIVES AND CONTROLS—I. S. Riggs, vice president of the Quaker Oats Co. and chairman of the AFMA board, noted that the feed manufacturers' basic purpose is to serve the farmer, reducing his "difficulties" as much as possible, and said "it appears that difficulties may result from the new food additives law, and particularly the Delaney clause."

Mr. Riggs traced the development of feed additives usage, emphasizing the value of these additives to producers and the economy in general.

For example, he noted that antibiotics have improved the growth and feed conversion in poultry by at least 5%, meaning that the producer nets 18¢ more per hen per year (on 300 million hens) and 1.5¢ more per broiler (on one billion, 600 million broilers).

"Arsenicals are the latest headline-getter in the additive field—not because of lack of performance, but because their use is being questioned by the Food and Drug Administration under the Delaney clause of the Food Additives Law," Mr. Riggs said. "Regardless of any personal feelings on the matter, research has established that the low level feeding of this low-cost additive in broiler feeding alone has increased returns to U.S. broiler growers by a minimum of ¼¢ lb. (and under adverse conditions, by as much as 1¢ lb.). This one controversial additive has reduced cost of U.S. broiler production by an estimated $14 million in 1959."

He commented also that there is evidence that the use of antibiotics and arsenicals in swine rations has decreased by $1 cwt. the cost of producing pork.

Cattle Feed Additives

"As much as $250 million is the dollar benefit of feed additives in beef production in this country. Iowa State University estimates that stilbestrol brings about an average feed saving of 12%, antibiotics about an average saving of 3%. On the basis that half the cattle in this country receive these two feed additives, this amounts to a total contribution of $300 million, less the $50 million costs of incorporating these additives in cattle rations," the speaker related.

"There can be no doubt of the economic importance of these feed additives to an animal agriculture under constant pressure to efficiently produce a better food at a lower price! It makes little difference whether they be called vitamins, antibiotics, coccidiostats, tranquilizers, enzymes, chemiobiotics, hormones or hormone-like substances. If yesterday they were legal, but today they are not, then Mr. Food Producer will make less profit and become less efficient—and Mrs. America will pay more for her market basket of high protein foods.

"Your job as feed control officials, in your respective states, is to help make sure that your farmers have the means of knowing what they are buying and getting their money's worth of product. Our job, speaking for AFMA, is to make sure our feeds and programs will make our customers a profit. FDA is properly interested in the health of the nation. So is the feed industry, and, in addition, the industry is interested in the economic efficiency and stability of the farmer. We are not interested in a scramble for something new and different to put into feeds, but we are vitally concerned with continuing to use additives of unquestioned worth which have not been indicted by research as injurious to health, and wish to continue in the future to make the benefits of proven products equally available to all producers.

Application a "Surprise"

"I think none of us in the feed industry expected this law to apply to drugs which were in general use prior to Sept. 6, 1958, the date when the law became effective. We assumed that such drugs were not food additives as defined by the law, and thus not affected by it, because they are substances generally recognized among experts to be safe under the conditions of intended use, or because they had been used with the sanction or approval of FDA prior to Sept. 6, 1958.

"Thus the freeze on feed containing diethylstilbestrol, dienestrol diacetate and arsenic-containing compounds pursuant to FDA's policy statement of May 30, 1959, came as a distinct surprise to the feed industry.

"This freeze has created confusion and caused hardship in the feed industry. It permits some feed manufacturers to sell feeds with these drugs while prohibiting others from doing so. This seems discriminatory. This freeze can't have anything to do with public health, as it has little or no effect on the total amount of feed sold with these drugs. It only tends to change the sources of feed supply.

"Consumers, producers, chemical manufacturers, feed manufacturers, and the Department of Health, Education and Welfare each has a great deal at stake in this problem. It would seem reasonable to expect the Secretary of Health, Education and Welfare to take the initiative in searching for an answer to this problem. The feed industry and the Food and Drug Administration have the power to make this amendment of great or little significance. The direction in which this power is applied will be largely determined by those presently concerned."

Mr. Riggs said in his concluding remarks that the feed industry is grateful to feed control officials for their "practical and common-sense" approach to the drug problem, and urged all concerned to cooperate to secure a "wise and enlightened administration" of the food additives law and other laws relating to feed.

CONTROLS AND THEIR EFFECTS ON FEED ADDITIVES—A "middle ground" approach to problems of the feed industry in protecting public health was urged in a talk by D. L. Bruner, executive secretary, Animal Health Institute.

". . . Industry shares with others the responsibility to protect the public health," he said. "Sometimes I'm inclined to think industry has the greater stake because it has an economic future to protect.

"The one great need today on the part of legislators, regulatory officials, manufacturers, farmers and consumers is to find a reasonable middle-ground—an acceptable balancing of safeguards on the one hand and enjoyment of scientific progress on the other. . .

"We certainly don't propose recklessness, but I think we should propose to have the courage to withstand unrealistic and unjustified pressures of vocal minority groups and individuals."

Mr. Bruner commended AAFCO for "keeping a calm, even perspective at the state level in the midst of furor which is going on currently and in the face of the several disturbing uncertainties raised at the federal level by certain aspects of the Food Additive Amendment."

He said the amendment may place state food or feed laws in "an awkward position" in other respects. As an example, Mr. Bruner said tolerances may not be allowed by current state regulations, even though permissible under the amendment.

He added, however, that there is one aspect of labeling "which is creating a certain amount of inequity." This aspect, he said, involves dosages of drugs of less than 50 gm.

"As an example," he said, "where

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MILL & ELEV. CO.
Minneapolis, Minnesota
Distributors in the Upper Midwest States for
SMALL'S DEHYDRATED ALFALFA MEAL

"Knock on Wood"

"Knocking on wood" is an ancient, superstitious act designed to bring good luck and avert misfortune. The practice originated among primitive peoples who worshipped trees, which were believed to house protective spirits. To knock on a tree was to appeal to the friendly spirits inside to protect one against possible danger.

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No need to "knock on wood" and hope that the dehydrated alfalfa you order will meet your exacting requirements of quality and delivery. Not when you can specify Small's Dehydrated Alfalfa and be *sure*. The guaranteed certificate of analysis with each order of Small's Dehydrated Alfalfa is your guarantee of product quality; the company's record of performance in the fulfillment of contracts is your assurance of delivery whenever and wherever you say. Put your faith in the brand that leaves nothing to chance—Small's Dehydrated Alfalfa.

ARCHER-DANIELS-MIDLAND CO.
ALFALFA DIVISION
BOX 356 • KANSAS CITY, MO.

FOR FEEDS WITH A FUTURE

Small's dehydrated alfalfa

Chicks Placed in Principal Broiler Areas

(000's omitted)

Week ending	Maine	Conn.	Penn.	Ind.	Ill.	Mo.	Del.	Md.
August 8	1,163	470	673	736	130	857	1,573	2,033
August 15	1,054	485	757	791	103	815	1,742	1,782
August 22	980	420	859	767	138	805	1,607	1,967
August 29	1,048	446	714	710	100	768	1,569	1,934
September 5	1,061	427	774	604	156	724	1,326	1,871
September 12	838	332	724	633	111	627	1,419	1,718
September 19	407	402	667	622	106	557	1,179	1,871
September 26	817	346	590	571	121	598	1,125	1,827
October 3	898	372	658	494	83	506	1,097	1,797
October 10	831	514	597	566	114	564	1,022	1,880

Week ending	Va.	W. Va.	N.C.	S.C.	Ga.	Fla.	Ala.	Miss.
August 8	1,116	445	2,551	348	5,807	158	3,098	2,045
August 15	1,009	528	2,660	292	5,730	177	2,973	2,169
August 22	1,060	463	2,581	272	5,370	205	3,019	2,035
August 29	1,001	486	2,396	303	5,331	170	3,034	1,780
September 5	984	467	2,405	263	4,812	213	2,906	1,664
September 12	896	386	2,355	257	4,668	234	2,568	1,618
Setptember 19	688	374	2,089	267	4,537	168	2,596	1,689
September 26	739	296	2,186	272	4,452	179	2,405	1,675
October 3	832	391	2,232	270	4,383	145	2,284	1,656
October 10	831	381	2,202	283	4,510	167	2,427	1,554

Week ending	Ark.	La.	Texas	Wash.	Oregon	Calif.	Total 22 areas 1959	1958
August 8	3,287	374	2,014	335	165	959	30,337	32,003
August 15	3,077	413	2,073	340	186	878	30,034	31,232
August 22	3,024	366	2,028	286	161	888	29,301	30,025
August 29	2,869	391	1,975	277	213	800	28,315	28,883
September 5	2,769	337	1,870	317	128	839	26,917	28,117
September 12	2,657	318	1,895	282	177	852	25,585	27,265
September 19	2,648	308	1,711	244	107	726	23,963	25,781
September 26	2,554	327	1,689	194	160	916	24,039	25,502
October 3	2,620	331	1,596	211	172	962	23,990	27,134
October 10	2,483	392	1,512	260	185	951	24,226	27,277

an antibiotic is used for non-therapeutic purposes at a level less than 50 gm., the feed need not be labeled 'medicated.' However, if other drugs are used in less than 50 gm. dosages, the feed must be labeled 'medicated,' even though a therapeutic claim is not made for the drug."

Mr. Bruner noted that it was his understanding that this inequity is to be clarified.

He noted that it has been suggested that representation of the Food & Drug Administration, AAFCO and industry meet to prepare a procedure by which feed control officials would be apprised of each of the drugs which have an effective new drug application or antibiotic certification.

Outlining the purposes and objectives of the Animal Health Institute, Mr. Bruner said AHI "endeavors to completely serve the trade association needs of the industry which supplies products—antibiotics, drugs and chemicals—used in the production, nutrition and health of animals. He said the institute had, on Jan. 1, 1959, publicly accepted responsibility in representing feed additive manufacturers.

In addition to commenting further on the purposes and accomplishments of the institute, Mr. Bruner answered a number of questions concerning "prior sanction"; the difference between veterinary drugs and food additives; combination of drugs; metabolites and conversion products, and the "De minimis" theory and tissue residues. (A report of Mr. Bruner's comments on these drug topics will appear in a future issue of Feedstuffs.)

REVIEW OF PROGRESS AND PROBLEMS—L. A. Koehler, Bismarck, N.D., president, Association of American Feed Control Officials, reviewed some of the progress and problems in control work and association activities.

He presented a brief description of what farming might be like in the year 2058 and speculated on how much of this may become reality in the next 50 years.

Among the problems he discussed were feed labeling and the Food Additives Amendment to the Food, Drug and Cosmetic Act. He said, "It is generally accepted that the amendment is for the public welfare and to protect the health of the American people. However, we cannot ignore the great strides made in animal feeding and nutrition through the use of feed additives."

He went on to say, "New products constantly come to our attention and often must be defined and evaluated. Changing methods in grain processing and marketing practices make present definitions for feedstuffs obsolete and new ones become necessary. New methods of feed distribution and mixing, such as contract feeding and custom mixing, present new problems. A proposed alternative method for listing feed ingredients poses still another problem."

Mr. Koehler said there is some feeling that certain committees which have a counterpart made up from industry are not truly representative, only representing certain segments of the interested industry group.

Adequate representation rests solely on industry for its portion of these committees. On some committees industry members greatly outnumber control officials. This is a situation which should be corrected.

WHAT ABOUT NATIONAL STANDARDS?—C. E. Hilton, chemical engineer in charge, American Standards Assn., pointed out use of American Standard lists of simple coined names associated with their complex chemical names, and he told how a project on common names for food additives got started.

He said a general conference at the offices of the American Standards Assn. was called on May 26 to determine if there was a national consensus in favor of starting an American Standards project on common names for food additives.

Among those attending the meeting was Stacy B. Randle, New Jersey's state chemist, a member and former president of the Association of American Feed Control Officials, who was representing the Association of Official Agricultural Chemists.

"It was on the basis of Mr. Randle's recomendation that the conference quickly agreed that AAFCO and AFMA should be invited to participate in the activity," he said, because of use of "food additives" in feeds also.

Mr. Hilton said, "The force behind those requesting ASA to hold the conference was the Food Additives Amendment which requires all additives—preservatives, emulsifiers, antioxidants—to be listed on food labels —including foods for cows, dogs and chickens.

He said the services of the American Standards Assn. are available to AAFCO if it wants to submit standards to ASA for approval as American standards, as in the case of common names for food additives.

ASA was "founded for the explicit purpose of providing a neutral meeting ground for all national groups interested in the development of voluntary national standards," Mr. Hilton said.

He said that AAFCO can delegate a representative to represent its viewpoint on the sectional committee that will draft the standard common names.

Mr. Hilton summed up his talk by saying that ASA is "the clearing house and coordinating body for voluntary national standardization and the channel for international cooperation on standards. It is a federation of 122 trade associations, professional societies and consumer groups, and has more than 2,000 company members. Its services are not limited to members."

CHEMELL

(Continued from page 1)

sets in "an orderly manner" — but were faced with the immediate task of feeding and taking care of about a million and a half chickens scattered over the Southeast.

First fact—no cash was available to purchase feed and no volunteer was noted who would provide the feed on the cuff. Second big item—what birds were mortgaged to whom and where were they?

The birds, with a value placed at $2 each, based on their market price as meat, plus their potential to produce broiler hatching eggs for an estimated 12-month period, were mortgaged for amounts ranging from a low of $1.50 to a high of nearly $5.00.

As it developed, these birds are the chief tangible assets known to have any liquidation value but represent a comparatively small amount of the liabilities, with the bulk being listed as "unsecured debts."

Banks Take Over Birds

Faced with the problem of preserving these assets, which were conservatively described as "perishable," Judge Mundy ruled, upon the recommendation of attorneys for both the Chemell corporations and the creditor committee, that the creditor banks could foreclose and take over the birds.

With this ruling, the debtor was relieved of all responsibility for the birds after Sunday, Oct. 11, until which time he was ordered by the court to feed the birds.

Biggest immediate problem of the bankers-turned-poultrymen was to determine which birds were mortgaged to whom as, in many cases, the flocks contained birds which had been mortgaged at different times to different banks.

As one banker said, "It's a case of your chickens and my chickens are as hungry as our chickens—so let's feed them first and then find out whose they are."

With this phase answered, at least temporarily, the court ordered the banks to continue to maintain the flocks, set or sell the eggs, and after deducting feeding and labor costs, to take what was owed them and turn the balances, if any, over to the receivers for distribution among the other creditors.

Then began action to nominate a receiver and keep the organization operating to the extent the hatching eggs produced could be set or sold while the liquidation is proceeding. No banker and no poultryman present expressed an opinion how long this may take, but few felt that any replacements will be made in the flocks as the breeders pass peak production.

Case Reviewed

It might be well, at this point, to go back a bit and review the case which developed slowly but steadily.

On Aug. 5, attorneys for Gainesville Hatchery, Inc., Chemell Hatchery, Inc., and Chemell, Inc., of which L. A. Chemell is president and majority stockholder, petitioned federal court for a six-months moratorium on some $1,500,000, during which time a reorganization plan could be presented creditors under Chapter 11 of the Bankruptcy Act.

The judge, in granting the petition, issued an injunction preventing litigation in bankruptcy against these three corporations, but did not list the 20-odd others in the "Chemell empire." It is important to note this action was taken on a voluntary basis with Chemell agreeing to turn over all his holdings to a board of trustees during the period of reorganization.

Following a series of meetings of the creditors, two committees were organized—one an 11-man group to handle the affairs of Gainesville Hatchery, Inc., and Chemell Hatchery, Inc., with the other a five-man committee to handle Chemell, Inc., which was a commercial egg program and not broiler hatching as was the case in the two former corporations.

At the time the original petition was filed, it was reported that Chemell assets far exceeded the liabilities and that there was no question of the corporations' solvency.

Pending further creditor meetings, efforts were made to audit the firms' books and evaluate the inventories.

Claims Over $4 Million

At a hearing in September in Atlanta, attorneys for Chemell said that lack of time prevented listing the firms' assets but creditor claims against all of the corporations exceeded $4 million.

Last week, as the hearing was resumed, attorneys for Chemell said no audit could be made but that a check of the records indicated Gainesville Hatchery, Inc., was insolvent to the extent of $1,800,000.

The previous week, Central Soya, Inc., filed suit in Hall County Superior Court against Chemell Breeder Farm, Inc., located at Talmo, adjacent to Gainesville to have a receiver named. On the strength of some $300,000 unpaid accounts, the court granted a temporary receivership.

Since Chemell Breeder Farm, Inc., was not specifically mentioned in the original injunction, the ruling had no effect on the action against the other three corporations.

Meanwhile, attorneys for Paymaster Feed Mills, Abilene, Texas, had recommended bankruptcy action be instigated against two Chemell corporations in Texas.

In the course of the various legal actions, Judge Mundy named C. K. Groves, president of the debtors in possession, L. A. Chemell; A. J. Stephens, Ralston Purina Co., St. Louis; Wayne Corpening, Wachovia Trust Co., Charlotte, N.C., and Dr. Fred Smith, Vantress Farms, Duluth, Ga., to the board of trustees. John Yarbrough, Gainesville, was named to replace Dr. Smith who declined to serve on the board.

Later, on the recommendation of the creditors committee, these five men were named to the boards of directors of all Chemell corporations.

Status of Corporations

Attorneys for the creditors, in recommending the petition for reorganization be dismissed and bankruptcy proceedings start, said the Chemell corporations, as a whole, are insolvent to the extent of $1,800,000; however, the net worth of Chemell Breeder Farm, Inc., is $283,000; Chemell Hatchery, Inc., $600,000; Chemell, Inc., $185,000, and all the others $878,000.

"Disregarding all inter-company accounts," they said, "the organizations are insolvent to the extent of $2,100,000, which includes the $300,000 to Central Soya.

"If inter-company accounts are given effect, the status of the corporations as a whole remains the same, but the insolvency of Gainesville Hatchery, Inc., would be reduced, but the other corporations would be insolvent."

C. K. Groves was quoted in the petition which was filed in the court as saying that "the picture of the organization had materially changed since the original petition was filed on Aug. 5."

It was explained that accounts listed as receivable were worth only a fraction of what they first appeared, that many had already been collected, many had turned out to be uncollectable, while others turned out to be very substantial offsets which were not reflected in the books.

It was further stated that many of the liabilities of the companies within the organization were not on the books, especially offsets which the Chemell organizations owed to various persons who were shown on the books as owing money to them.

A third factor in this revised statement, indicated a substantial part of the inventory of birds which were assured as being free of liens, were

mortgaged, and some of the former officials of the organization, in attempting to evaluate the inventory, had based their opinions apparently on past sales of birds whereas the present markets were considerably less favorable.

Mr. Groves stated that annual operating costs were $9.5 million, based on sales of 85 million baby broiler chickens from 600,000 cockerels and hens, plus about 800,000 growing replacements—reflecting an operating cost of 11¢ per chick.

"Based on today's average of 9½¢ per chick, the firm would lose $1,800,000 per year and even with an average price of 12¢ per chick, the firm could realize a profit of $700,000—but without any provision for bad debts, and many of the accounts listed as receivable are bad debts."

Voluntary Bankruptcy

In view of the opinion of the creditor committee that chick prices are likely to average about 9½¢ for the rest of the year, indicating additional loss of $300,000, attorneys for both Chemell and the creditors recommended the court adjudicate Chemell insolvent so that voluntary bankruptcy proceedings could start immediately.

After a brief legal skirmish to establish the fact the petition had been voluntary, Judge Mundy agreed to proceed with the case on the basis of a bankruptcy under Chapter 10. At this point, members of the creditor committee stressed the fact the tangible assets, in the form of some million and half chickens, were highly perishable and steps must be taken to care for and feed the birds at once.

In view of this situation, and with the consent of the creditor committee and attorneys for other creditors, the judge granted the banks with mortgages on the chickens to foreclose at once and take over the maintenance of the flocks.

Spokesmen for several feed companies told this reporter it was their belief the companies will "assist the banks" in feeding the birds during the "liquidation period."

W. F. Cummings, Atlanta businessman, who has served as management consultant for J. D. Jewell, was nominated for receiver. Attorneys said that Mr. Cummings had agreed to serve without compensation, other than official expenses.

It was recommended that a receiver be named for each corporation with the suggestion the same person serve in that capacity for each firm. It was stated this would simplify work with the boards of directors of the firms—all the same persons — and would effect economies of administration.

This recommendation met with protest from attorneys for creditors of Chemell, Inc. Despite the fact the five-man creditor committee has previously declared the 11-man committee could speak and act for them, for expediency, the attorneys for the creditors insisted Chemell, Inc., be handled separately since the operation—commercial egg hatching—was entirely different from broiler egg hatching, and pointed to the appointment of a different receiver for Chemell Breeder Farm, Inc., as a precedent.

Attorneys for Talcott, Inc., large creditor of Chemell, Inc., with mortgages on a large number of chickens, favored a single receiver, or one "common to all" since efforts to unravel the threads of the Chemell operations would be "like trying to trace a bramble branch in a briar patch."

Judge Mundy named Dent Bostick, Gainesville attorney, as receiver for Chemell, Inc. Hayne DeLong, Gainesville, had been named receiver for Chemell Breeder Farm, Inc., by the Hall County Superior Court.

The scene next shifts to Gainesville, when the creditors committee, attorneys and newly-appointed receivers get together on Oct. 20 to work out the details of the herculean task of "liquidating the Chemell empire in an orderly fashion."

Possible Repercussions

What are the possible repercussions now that the question of Chemell's insolvency has been answered?

Attorneys, bankers, poultrymen and large creditors involved are wary in making any comments, especially for direct quotation. But in general, the opinion has been expressed there will be further tightening of credit and that poultrymen needing any will have to show some very accurate balance sheets backed up by certified audits.

Few felt that the gradual liquidation of the breeding flocks will bring about appreciable reduction in chick placements since most of the large operators who were Chemell customers will turn to other sources.

Some said that tightening of credit may make it difficult for broiler contractors to buy chicks in large volume from other sources without substantial credit backing; others said more broiler contractors may be forced to go out of business.

Equipment people appeared not to be concerned that the liquidation process will load the market with a lot of used feeders, waterers and hatching equipment. It was brought out in the course of the hearings that most of the small equipment was owned by the growers and that almost all of the hatching equipment was leased, as was a great deal of other physical material, including trucks and cars used by the employees and personnel at Chemell.

"I've often wondered how a banker would go about running a chicken farm," one poultryman observed, "and now we're going to get that chance.

"We might be able to pick up some valuable pointers."

Oscar A. Beard Dies

YAKIMA, WASH. — Oscar A. Beard, president, Beard Adams Seed Co., Inc., died recently.

Mr. Beard was a partner in the Beard Adams Seed firm for 37 years. Prior to coming to Yakima, he spent 28 years with Sioux City (Iowa) Seed Co.

The company will continue operations at its present location.

Blatchford Firm Names General Sales Head

WAUKEGAN, ILL. — Bert Swanson has been appointed general sales manager of Blatchford Calf Meal Co., Waukegan, according to J. E. Sams, vice president in charge of sales and former general sales manager.

Bert Swanson

Mr. Swanson began has career with the company 11½ years ago as a feed nutritionist and later served as assistant to the vice president in charge of sales. In the years just previous to this general sales manager appointment Mr. Swanson traveled in Blatchford's territories with the firm's sales representatives and held jobber meetings in key areas in addition to his other duties.

W. M. Andersen Heads Biochemical Sales

SALEM, VA. — The election of W. M. Andersen as vice president and director of sales for Biochemical Corporation of America, Salem, Va., has been announced by H. Thomas Martin, executive vice president and general manager of the firm.

Mr. Andersen, associated with the feed industry for more than 30 years, will be in charge of sales and advertising for the company, manufacturer of a wide variety of enzymes and enzyme products for animal feeds, baking, brewing and other industrial uses. The firm is the manufacturer of Silo-Zyme, a special enzyme-nutrient base designed to enhance and control natural silage fermentation.

Before joining Biochemical Corporation of America, Mr. Andersen was president and general manager of the New England By-Products Corp., Boston, Mass. He was associated with that firm for more than 20 years and served as divisional manager and general sales manager before being elected president. He began his sales career in the animal feed industry with the Albert Dickinson Co., Chicago, and later had sales positions with the Kraft Foods specialty division and White Laboratories.

Broiler Egg Set Shows Increase

SALISBURY, MD. — The nation's egg set jumped up last week as a slight improvement came in broiler prices.

Hatcherymen in 22 important broiler producing states set 35,001,000 eggs, 7% above the previous week. The price paid on the farm for broilers in Delmarva was 15.8¢, compared to 14.49¢ a week earlier.

However, the price received for poultry was slightly less than a year ago when the average was 15.90¢.

A year ago the egg set was 8% greater.

Settings were up from the previous week in 19 of the 22 states, with sharpest increases reported in Virginia, Arkansas, Maryland, Georgia and California.

Chicks started on the farm last week totaled 24,226,000 in the 22 states. This was 1% above the previous week and 11% below the corresponding week a year ago. Increases were reported in 12 states and decreases in 10 states, with largest increases from the previous week reported in Alabama, Georgia and Connecticut.

National Alfalfa Holds Workshop in Omaha

OMAHA, NEB. — The production superintendents from Nebraska and the entire sales force of National Alfalfa Dehydrating & Milling Co. gathered in Omaha Oct. 12 for a sales and production workshop. Directing different portions of the meeting were Alex Donelly, president; A. R. McFadden, vice president in charge of sales, and Loren Estep, vice president in charge of engineering and maintenance, all of Kansas City.

The previous day, the group toured National's new Blair, Neb., facility. The laboratory and office have been completed and two dehydrating drums are in place ready to operate next season. Machinery is still being installed in the 16,000-ton gas storage, grinding and blending plant. The plant is located adjacent to the Chicago & Northwestern Railway and the Missouri River. Rail and truck facilities for loading and unloading will be ready shortly, and National officials expect to install barge-loading facilities in the future.

An open house at the Blair plant for the feed trade is being planned for the future, Mr. McFadden said.

SECO Lists August As 'Biggest' Month

NASHVILLE, TENN.—August was the biggest month in the 10-year history of SECO, Inc., Nashville and Goodlettsville, Tenn., according to Paul J. Zimmerman, executive vice president of the feed mill manufacturing firm.

"Most of our recent sales increase is due to the development of the new pushbutton mobile feed mill," he said.

All new owners of the mills attend a SECO training school in Nashville where they are acquainted with the new mill and all facets of mobile milling.

CAPITAL COMMENT

BY JOHN CIPPERLY

WASHINGTON — It was nothing less than old home week when the Corn Millers Federation staged its annual session in Washington.

Two dozen top level officials of the U.S. Department of Agriculture, and Food and Drug Administration assembled at a federation luncheon party.

The outturn of this size may possibly be attributed to the appearance of the sturdy old oak of the corn industry, Harry Hunter, who interrupted his retirement in Florida to come to Washington to assure himself that the new gang, Don Counihan and Tom Wright, were keeping the balls on the alley.

They did.

Welcoming Harry Hunter at the luncheon was an explosive party from USDA, which featured the luncheon speech of Clarence Miller, assistant secretary of agriculture. Mr. Miller noted the presence of none less than Walter C. Berger, administrator of Commodity Stabilization Service.

The federation party was crowded. Seats at the tables were just not available.

It only adds up to the conclusion that corn millers are people, and good people.

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Senate Unit Asks Grain Firms for Finance Statements

By JOHN CIPPERLY
Feedstuffs Washington Correspondent

WASHINGTON—A selected number of grain companies have been asked by a subcommittee of the Senate Agriculture Committee to submit financial statements. Chairman of the subcommittee is Sen. Stuart Symington (D., Mo.). Committee counsel, Richard Schmidt, former Denver attorney, declined to comment on the action, saying any statement would be inappropriate at this time.

Immediately following this development, the President authorized the Agriculture Committee to examine federal tax returns for the years 1950-59 in its investigation of the Commodity Credit Corp. The executive order not only includes actions under CCC but also other departmental activities of the U.S. Department of Agriculture. The President granted the committee request for permission to examine the returns of income, estate and gift returns of any persons involved.

Trade sources say that the inquiry appears to put emphasis on income derived from operations under the Uniform Grain Storage Agreement. Thus far, this request for information is the first formal move on the part of the subcommittee. It is believed that the list of firms receiving the request is the same list of large warehousemen whose companies were cited by the House Agriculture Committee when it held hearings on the legislation to extend the life of Public Law 480.

The firms have expressed willingness to comply with the request for the submission of financial statements.

It is understood that general accounting officers have been working in the offices of several grain companies—for at least two weeks in one instance—in an attempt to ascertain the cost of operation of grain storage facilities which are contracted to USDA under UGSA.

FIRE DAMAGE

MONROE, WASH.—Fire recently damaged an 80 ft. high grain elevator at Wolfkill Feed & Seed Co. here. Firemen said damage was confined to the elevator shaft.

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More Feed Grains Expected

WASHINGTON—Feed grain tonnage this year is expected to be well above that of last year, even though harvesting of corn and sorghum is not yet complete. The oilseed tonnage will be a little lower than in 1958 as smaller soybean, flaxseed and peanut crops more than offset the increased volume of cottonseed.

The above observations are reported in the U.S. Department of Agriculture's October crop report.

Total crop production equal to the record of last year now seems likely, "given successful harvest of late crops."

Pasture: Pasture feed supplies on Oct. 1 were below the "unusually lush conditions so prevalent a year ago," but generally above average except in the northern Great Plains, parts of the Ohio River Valley and the Atlantic states from Virginia to New York.

Corn: Production is forecast at a record 4,429 million bushels, 1% above last month's forecast and 17% above last year.

Soybeans: Production is estimated at 530 million bushels, down slightly from last month, and 8% below the record 574 million bushels last year.

Sorghum Grain: Production is forecast at 573 million bushels, 1% above last month's forecast, but 7% below the record last year.

Wheat: Production of all wheat is estimated at 1,117 million bushels, slightly above the Sept. 1 estimate, but 24% below the record 1958 total.

Hay: The 1959 crop is estimated at 113.9 million tons—7% less than in 1958, but 6% above average.

Cottonseed: In the USDA report it is estimated that cottonseed production in 1959 will be 6,095,000 tons, compared with 4,798,000 tons in 1958.

W. A. Stohrer

H. T. Lyon

Allied Mills Announces Production Promotions

CHICAGO—L. T. Murphy, chairman of the board, Allied Mills, Inc., has announced three executive personnel changes made in the production department of the company. They are:

F. H. Blough has been elected vice president and general production manager (Feedstuffs, Sept. 26); W. A. Stohrer has been named assistant general production manager and labor relations director, and H. T. Lyon has been named assistant general production manager and manager of the soybean division.

Mr. Stohrer, a graduate of the University of Illinois, became associated with Allied Mills in the accounting department at Peoria in 1933. Later he spent some time at the Memphis plant after which he served as plant manager at Omaha from 1948 to 1952, then returned to Peoria as plant manager. In 1956, he was promoted to the position of assistant general production manager in the Chicago office where he also assisted in labor relations.

Mr. Lyon has been with Allied Mills since 1942, with the exception of a three year leave of absence on duty with the navy in World War II. He started in the Chicago office where he served in the accounting, purchasing and soybean departments. In 1955, he was appointed to assistant plant manager at Peoria and was promoted to plant manager in 1956. He returned to Chicago in 1958 as assistant manager of the soybean division.

In his new position, Mr. Lyon will supervise operations in some plants and all operations of the soybean division.

REOPENING UNLIKELY

SALISBURY, MD.—Officials of the Maryland Chicken Processors at Snow Hill said there are no definite plans for reopening the plant which was closed recently. Bernard Bogage, vice president and general manager, cited recent low prices of poultry with heavy competition from other areas. Mr. Bogage said the operation's primary problem is lack of sufficient product because costs of the operations have not justified continual production.

Western Farmers Lets Mill Contract

SEATTLE, WASH.—A new $1½-2 million mill designed to produce bulk formula feeds and distribute them from the plant directly to feed bins on members' farms is to be built by Western Farmers Assn., Portland, Ore., on a 10-acre Portland industrial site recently acquired at Mocks Bottom.

Harry J. Beernink, the association's general manager, said the contract for construction has been let to Jones - Hettelsater Construction Co., Kansas City, Mo. Sept. 1, 1960, has been set as the completion date.

Western Farmers Assn. is a division of Washington Cooperative Farmers Assn.

"The new mill will be the first of Western Farmers' facilities on the Portland site to provide increasingly expanded purchasing and marketing services for farmers in northwest Oregon," Mr. Beernink said. "A complete line of all types of poultry and livestock formula feeds will be manufactured at the new mill."

The building, 210 ft. long, 100 ft. wide and 175 ft. high, will be constructed of concrete and steel and will include bulk storage bins. "Its location on the Willamette waterway particularly lends itself to barging grains grown in eastern Oregon and Washington down the Columbia and Willamette rivers for storage and feed milling requirements," Mr. Beernink noted.

"This latest expansion comes soon after members of the Tualatin Valley Cooperative, Hillsboro, Ore., overwhelmingly approved a plan for unification with Western Farmers, which became effective Sept. 1."

Future developments planned for the Portland site, according to Mr. Beernink, include egg handling and distribution facilities; a poultry processing plant; seed, fertilizer and other farm production supplies and petroleum procurement services.

Canada Order Delayed

WINNIPEG—A federal health of animals regulation prohibiting the movement of unfinished cattle out of packing house stockyards in Manitoba, which was scheduled to go into force Oct. 9, has been postponed until sometime in December.

Yards at packing houses are considered infected premises and cattle cannot be moved from them except to another packing house under terms of the Animal Contagious Diseases Act, administered by the health of animals division, Canada Department of Agriculture.

Production School Seminar Planned

KANSAS CITY—Fifty representatives of firms allied to the feed industry have been invited to be present at the second Production School Seminar in Kansas City Oct. 29-30.

Max W. Cooley, Hoffman-Taff, Inc., Springfield, Mo., who is chairman of the 1960 Feed Production School committee, said that 37 subjects have been proposed for next year's program in the general field of compounding, mixing and grinding. Of these 12 are possible research projects which would be conducted specifically for the 1960 program. From the presentations made at the seminar, the committee will select subjects to be programmed for next year.

The school will take place at the Continental Hotel, Kansas City, next September, on dates yet to be selected.

Over 800 attended the 1959 Production School which recently was completed, and which featured pelleting problems and solutions.

Chickasha Cotton Oil Reports Fiscal Status

FT. WORTH—Chickasha Cotton Oil Co. reduced losses in the first fiscal quarter ended Sept. 30 below the $415,544 reported in the like year-ago period, according to P. A. Norris, president of the firm.

Presiding at the company's annual meeting, Mr. Norris noted that Chickasha customarily operates in the red in the first quarter while its cotton mills are awaiting the cotton harvest, but he said this year's loss would be "smaller."

His remarks, reported in the Wall Street Journal, included a statement that the company had "completely integrated" its poultry operations and had cut overhead in most divisions. He also said the firm's 16-store grocery chain is showing a profit, "although it is not satisfactory."

For all of the fiscal year ending June 30, 1960, Mr. Norris declined to predict earnings, noting only that sales will probably be as good as those of fiscal 1959. Last year Chickasha Cotton had a net income of $655,228 on sales of $26,563,317.

New Officers Elected

MADISON, WIS.—W. C. Porter, Janesville, was elected president of the Wisconsin Hatcheries Assn., at the group's annual business meeting here recently.

Other officers elected include Paul Radke, Appleton, vice president; James R. Rindfleisch, Jefferson, treasurer, and C. A. Zellner, Janesville, executive secretary.

In a panel discussion at the meeting, it was agreed that the new hatchery practice of raising pullets and then selling them to egg producers just before they start laying would increase in Wisconsin. The practice suits the larger flock owners because often they do not have the proper facilities for raising their replacement stocks, panel members said.

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AFMA Speakers Discuss Sound Financing

Services of Commercial Banks

By John H. Hembree
Union Planters National Bank

EDITOR'S NOTE: A panel discussion on "Sound Financing" was included in the program of the recent first annual conference of the Sales Executives Council, American Feed Manufacturers Assn., in St. Louis. The talks on this page, by Mr. McGuire and Mr. Hembree, were part of the panel presentation. E. A. Thompson, assistant general sales manager for Supersweet Feeds, Minneapolis, served as panel moderator. In his introductory remarks Mr. Thompson noted that feed manufacturers have become involved in financing and credit because such financing was often not available from regular lending institutions, and that as a result, producers, allied industry and governmental agencies have blamed feed manufacturers for overproduction and resulting poor prices. "I am sure that it is the desire of all managements of the feed manufacturers to return the credit and financing function to the agencies and institutions where it rightfully belongs," he said. Mr. McGuire is public relations consultant for the Federal Intermediate Credit Bank of St. Louis, and Mr. Hembree is vice president of Union Planters National Bank of Memphis. Their talks are published in part.

The capital requirements of "agribusiness" are highly related to those of American manufacturing generally. Agribusiness capital accounts for more than 50% of the combined assets of manufacturing and agriculture, while accounting for only 40% of consumer expenditures.

Clearly, we are dealing with customers who have a great and growing use for money. You may ask the question, "Where does the feed company and commercial bank fit into the picture?"

Banks traditionally have been an important source of credit for agriculture, with 92% of the banks in the U.S. financing farmers. These banks hold almost $6 billion in farm paper, which is about one quarter of the total farm debt.

Although banks historically have been major suppliers of farm credit, the trend in recent years in certain industries, such as the broiler business, has been such that less and less credit has been supplied direct to the producers.

Let's think in broad, general terms of the primary responsibilities and aims of the major feed companies. I have been led to believe that a major feed company's primary responsibility is to produce, as efficiently as possible, feed of the highest quality, at the most economical price that will be competitive both as to quality and price and, at the same time, make a profit for the feed manufacturers, for the dealers, and for the man using the feed.

The feed companies have made tremendous strides during the past 20 years in accomplishing this aim. They have made these strides by nutrition research; by their very competitive sales organizations, and by their field service forces. All of these accomplishments have not been accidental. They have been brought about by the intense competition between the major feed companies in an effort to do a better job of feeding so they can, of course, sell more feed.

"Selling" Credit Terms

During the past few years, as a credit man, I have been somewhat disturbed by the intense competition among the feed companies. I frequently hear of salesmen of some of the major feed companies, in talking to prospective customers, discuss the virtues of the various lines of feed, not so much on the basis of the quality of the feed, but on the method of financing by the company, the easy credit by the company, etc.

I have had the feeling for some time that the salesmen have been devoting most of their time to selling their credit program and the so-called easy credit of their company, rather than to the selling of their feed. I recognize that a major company can provide a much easier system of credit than that provided by a commercial lending agency. This is easily understood since the bank or other lending agency's income from handling

(Turn to FINANCING, page 54)

FINANCING DISCUSSION—"Sound Financing" for feed companies was discussed by a panel at the first annual conference of the Sales Executives Council of the American Feed Manufacturers Assn. in St. Louis recently. Panel members are (left to right): E. A. Thompson (moderator), assistant general sales manager, Supersweet Feeds, Minneapolis; Warren M. Buck, Small Business Administration, Kansas City; T. R. McGuire, Federal Intermediate Credit Bank of St. Louis, and John Hembree, Union Planters National Bank, Memphis.

Production Credit Assns.

By T. R. McGuire
Federal Intermediate Credit Bank of St. Louis

The U.S. is divided into 12 separate farm credit districts. Ours is the Sixth Farm Credit District, with headquarters in St. Louis, serving three states—Arkansas, Illinois and Missouri.

Each of these districts has in it one Federal Land Bank which, through the National Farm Loan associations, provides a source for long-term farm mortgage credit; one Bank for Cooperatives — primary lenders serving the credit needs of other farmer cooperatives, and one Federal Intermediate Credit Bank, which, through production credit associations, furnishes a source of short-term and intermediate-term credit to farm people.

In this discussion we are interested in the services available to farmers through production credit associations.

Sound, dependable credit through production credit associations cooperatively operated by farmers first became available when farmers organized the first associations in 1933. The system which began at that time has grown to where today it has about a half million farmer members.

Farmers have taken a keen interest in production credit associations and have dug deeply into their pockets and have willingly made substantial investments to capitalize the associations. On June 30, 1959, they owned capital stock amounting to $145,582,000 in their 495 production credit associations in the U.S. Thousands of farmers have invested more than the amount required to obtain the credit they needed because they want to build and keep their source of credit dependable and permanent.

In order to be completely dependable to the farmer, a system of securing the necessary funds to lend has to be obtained. This source of funds had to be almost limitless in the amount it could furnish, and at

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the same time, the cost held to a minimum.

It was decided that a consolidated collateral trust debenture would be issued through a fiscal agent's office in New York. The fiscal agent is in constant touch with the large banks, insurance companies and other large investors. He tests the market to determine the rate to be asked so as not to price the debentures out of the market, nor to undersell them. The debentures are issued once each month in denominations of $5,000, $10,000, $50,000 and $100,000. They are handled by stock brokers and investment dealers all over the U.S.

Although these debentures are in no way guaranteed by the federal government, they are listed with government securities and draw the prime rate in this classification. Over the years these debentures have become known to investors as "seasoned securities," and occupy a favorable position in the market next to government bonds.

These funds are moved down into the hands of the farmer through the production credit associations by discounting their paper with the Federal Intermediate Credit Bank.

Permanent Lenders

Because of the very nature of agriculture, there are particular hazards to be dealt with. For this reason there is now and always has been a need for permament lenders in the field who know and understand farm problems.

The agricultural industry is no longer a "way of life" where all phases of the business are conducted on the farm. Today each phase has become a business within itself. This change has left the farmer with only one job to do, and that job is production.

To meet this challenge of change, the farmer has moved from the use of horse-drawn equipment to complete mechanization. To get the maximum efficiency from power machinery, the size of the farm has had to increase. These two factors have greatly increased the farmer's capital investment in land and equipment.

It is estimated that the average farm in the Midwest has a capital investment of approximately $59,000 per farm worker, and that amount will likely have to be increased to maintain a satisfactory farm income. This will require an even greater amount of credit to furnish the capital necessary to protect the farmer and to maintain a profitable business.

Cooperative farm credit came into being because it filled needs that were not being met by other businesses, and it can only survive as long as it continues to fill those needs.

Production credit associations have long been recognized as the designers of modern lending practices, especially adapted to meet the specialized needs of agriculture. As the credit picture has changed along with other changes in farming, the associations have kept pace by revising procedures and adding new features.

PCA Eligibility

If you are engaged in agriculture as an individual, as a member of a partnership, or a farming corporation, you are eligible to use production credit association services. In setting up a credit program, we will discuss your farm plan with you, what you expect to produce, what the product will sell for, and when and how the anticipated returns will repay the loan. The maturity of the loan will be adjusted to fit the actual time of expected repayment.

The loan may be set up on a budgeted basis with disbursements to be made on fixed dates for specific amounts, or the loan may be set up "on call" to be disbursed as the bor-

(Turn to page 14)

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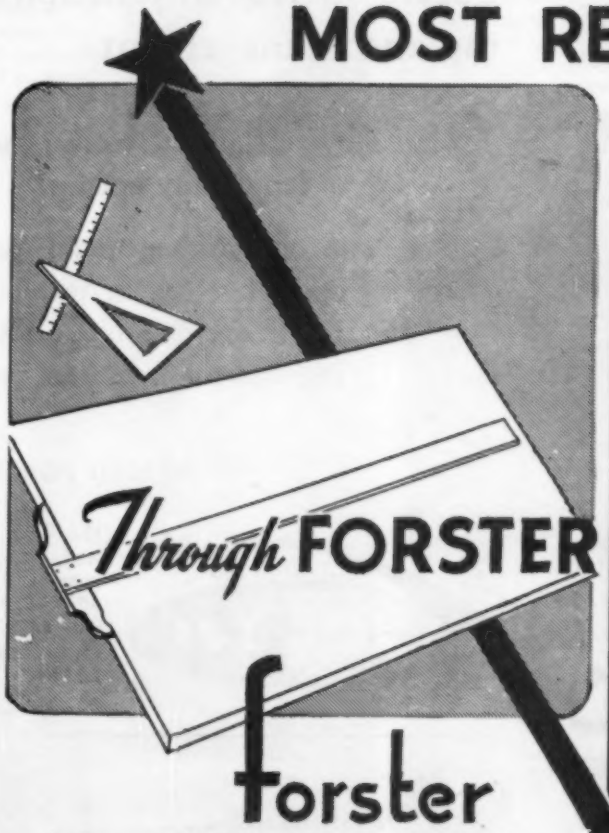

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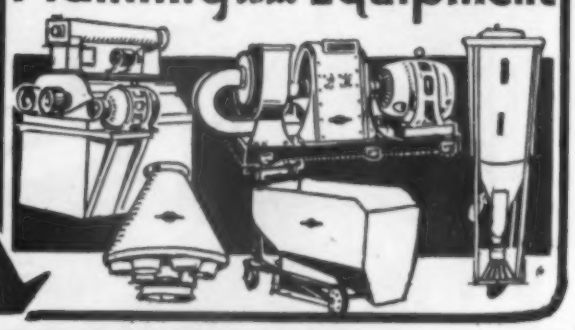

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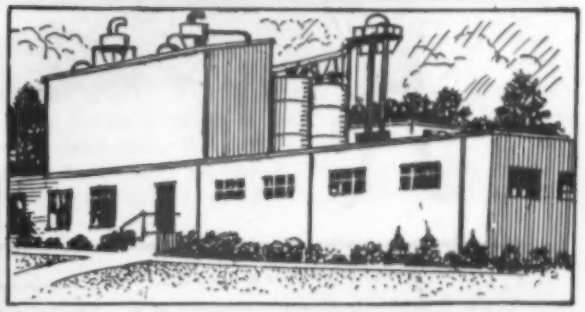

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How well it succeeded can be judged by the number of top quality entries.

The outstanding point proved was that it requires special attention to all phases of swine production to get top results . . . not only in feeding, but breeding and management as well . . .

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SAS — FIRST OVER THE POLE

The 4 top winners and their feed suppliers will leave from New York City on November 8 for a special tour of four European countries. It's not all pleasure; there's business, too . . . for they'll tour leading swine raising operations and research centers to gain still more information for their already outstanding swine programs.

"Entries were outstanding . . ."

Picking the winners was a difficult job. Out of all the entries, the leading contestants were visited by 4 of the nation's leading swine experts. Said the judges, "Beyond a doubt, these winners are excellent examples of how modern Life Cycle swine practices can upgrade income and profits of America's swine producers."

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Science for the world's well-being

Mr. and Mrs. Martin Annexstad, St. Peter, Minnesota . . . he backed up his prize-winning litter and management program with 25 years of swine-raising experience. Active in state and natonal swine circles, Annexstad says, "I entered this contest with the idea of learning more about the results you can get from feeding different protein levels to swine from birth to market. I learned a number of other things too. One thing that stood out was that feeding pigs in smaller groups resulted in better feed utilization and gains. The information I gained from this contest will help me in my future hog operation."

Mr. and Mrs. Philip Jordan, New Paris, Ohio. . . he raised about 3,000 hogs a year . . . all from boars and gilts out of the best available meat-type litters. He's a great believer in weaning pigs as early as possible. His contest litter returned $157.90 over feed costs . . . all graded No. 1 at market time. Mr. Jordan uses Life Cycle principles for all his swine operations . . . feels strongly about practicing top-notch feeding and management from breeding to market.

Robert Gallagher, Minnesota Farm Bureau Service Co. . . . he worked closely with Mr. Annexstad in the contest program. "Winning was something we hoped for but never dreamed would happen," says Gallagher. "Good breeding, sound management and scientific feeding are the keys to the success of Annexstad's swine program. Winning this award is further proof of his ability."

Mr. and Mrs. Luther Stover, Stover Feed & Grain Co. . . . he was sure Mr. Jordan would win all the way. He works with Mr. Jordan to supply the best possible feeding programs for the Jordan swine operation . . . feeds properly balanced for each stage of the life cycle. The Stovers will go to Europe along with the Jordans.

Mr. and Mrs. Willard Waldo, DeWitt, Nebraska . . . he's a breeder of registered Duroc hogs. To him, Life Cycle Feeding means "providing all the essential ingredients at all stages of life from pre-mating until offspring are ready for market or to be used as breeding stock." Mr. Waldo thinks the No. 1 problem in the swine industry is improving carcass and meat quality. To check carcasses for meat type, he has slaughtered animals out of all his bloodlines for 22 years.

Mr. and Mrs. Wayland Givens, Owensboro, Kentucky. . . a purebred Hampshire breeder, Mr. Givens takes a pig from each litter he raises for carcass testing. He selects breeding stock only from certified meat-type litters. "Life Cycle Feeding to me," says Givens, "means faster gains and lower feed costs through feeding properly balanced and medicated rations each stage of the 7 life stages." Out of his 1500 hogs a year, 90% are sold as breeding stock, mostly throughout the South.

Mr. and Mrs. Arnold Sukovaty, Wilbur Coal & Feed Company . . . he is a supplier of high quality swine feeds, balanced and medicated according to Life Cycle principles. The Sukovaty's have been handling feed in Nebraska for 15 years. They'll take the free November trip to Europe.

Mr. James Nunnley, Professional Feed Division of Spencer Kellogg. . . Mr. Givens works hand in hand with his local feed supplier to get the type of feeding program he needs for top performance from his swine herd.

rower needs it, or he may receive all the money at one time.

Money may be borrowed for any agricultural purpose. Poultrymen often use credit to pay for feed, labor and facility costs, along with many other items. All kinds of operators may need money for refinancing debts, pay taxes, mortgage payments, insurance and the like. You will find that production credit association loans are not only adapted to every farming operation, but also to every individual case.

The repayment of operating loans such as we have been talking about is geared to the income received from the farm operation. The payments are applied on the principal of the loan according to a prearranged plan. The borrower benefits by reducing the balance owed whenever possible, as interest is charged on the money only for the time you use it. The notes are made to come due at the time you will normally be receiving returns from the sale of the products. This is the only logical time to pay debts incurred for production costs during the year.

The association also makes loans on an intermediate term basis with maturities ranging up to five years. There is no doubt that today's farmers have a real need for longer term credit in their financial programs. This change in the type of credit required has largely been brought about by the tremendous increase in capital investment of the expanded farm unit, making it necessary to spread the cost of major pieces of farm equipment and improvements over a longer period of time.

Interest Rates

Interest rates charged by production credit associations in this district vary by association. At the present time they will range from 5½% to 7%. All types of loans carry the same interest rate, and each individual is charged the same rate.

In an effort to meet the needs of a changing agriculture, and in answer to a number of requests from farm supply cooperatives, the production credit associations worked out a plan whereby the patrons of these cooperatives can use the services of production credit to finance their purchases that normally would be carried as accounts receivable.

Just as soon as our plan for farm supply cooperatives became known, the independent merchants dealing in farm supplies also began asking for a plan whereby their customers could also be financed by production credit. Here, again, we were glad to have an opportunity to extend our point of service and to place the complete facilities of the production credit system at the disposal and use of the farmer.

The decision to enter into such financing must be made by the local production credit association and the local dealer. The Federal Intermediate Credit Bank will be fully informed of the terms and conditions on which the credit is to be offered, and the bank must concur in the action.

Since this is a cooperative and the principles on which this system is built demand stock ownership by the farmer for the purpose of voting rights, and, to support the capital structure of the association, each borrower is required to buy the usual amount of stock to qualify his loan.

The decision on the credit must remain in the production credit association. Loans considered to be of satisfactory quality may be handled by the association in its usual manner, leaving the dealer with no further responsibility. On weaker loans the association may require the dealer's endorsement. It then requires the dealer's decision to determine whether he desires to assume this responsibility and contingent liability.

In the case of dealer endorsements, the dealer must furnish the association his financial statement, and from time to time the association will advise the dealer of the amount it is willing to accept on his endorsement.

To facilitate the handling of such credit, and for the convenience of the farmer, arrangements may be made, in some cases, for a service point to be established at the office of the dealer. The necessary papers will be drawn on forms furnished by the association. Even though the dealer takes the application for credit, he does this only to assist the farmer in obtaining credit, and under no circumstances does the dealer act as an agent for the association.

Operation Example

This program is working in many places over our three-state area. Just a few weeks ago I was talking to the credit manager of one of the larger feed manufacturers, and he said, "I have just had a very pleasant experience in working with one of your production credit association offices. We have a dealer in this town who had over $72,000 in accounts receivable. We talked to the production credit association manager and explained our problem. Our dealer showed him his accounts and found that several of the men were already production credit association members and these the production credit association could handle immediately. Checking the list further, we found several more whose business the production credit asso-

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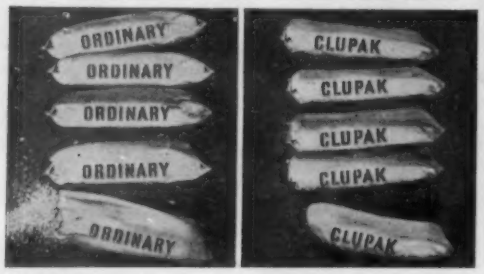

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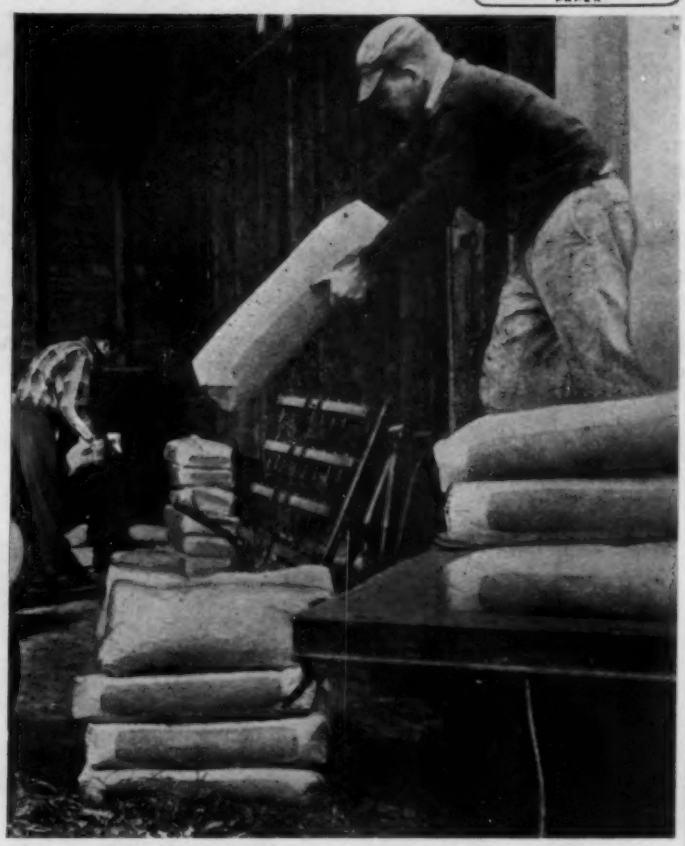

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Four men...four problems

RALPH JAROCH, WAUKESHA, WIS. "Four weeks after caging my birds they were laying about 20%. I tested nf-180 on one row — 418 birds — and in two weeks they jumped from 138 to 358 eggs a day. They averaged 75% right through 5 hot months when I usually had a drop. Now all my birds get feed with nf-180."

ROBERT KELLER, NOTTINGHAM, PA. "I produce around 1150 dozen hatching eggs a week. After testing nf-180, I switched entirely to it. And the last three hatches came off at 87% . . . paid me a bonus of $172.00 in one month. I also like the steadier production nf-180 gives."

J. RUSSELL McKARNS, WEST UNITY, O. "Four years ago I began losing hogs to necro and bloody dysentery. We used some other treatments without results, then my feed company said to try nf-180. We tested it on half the sick pigs and in a week they were back pretty near to normal . . . and didn't come down with scours again. If it hadn't been for nf-180, we'd have been out of the hog business."

IAN S. THOMPSON, NEW HOPE, PA. "In these days of keen competition, every avenue must be employed to hold up production and cut costs. And I honestly think that to make out in the egg business, you have to have nf-180. It's cut my mortality to the lowest ever. My feed conversion is running 3.5 lbs. to a dozen eggs. After 14 months of lay, my old birds are still laying at 60-65%. I plan to keep my birds an extra 4 to 6 weeks."

Each got fast, effective help with good feeds containing nf-180

Feed company research shows nf-180 even surpasses claims

These four men are just a sample of the thousands who have switched to nf-180 . . . often after doing their own private testing beforehand.

Several major feed companies have tested nf-180, too. One company with extensive research farm facilities found in making its own comparisons that results considerably exceeded the conservative claims which have been made by Hess & Clark. As a result, that company now includes an nf-180 medicated layer ration in its line of feeds. (Many other feed manufacturers also regularly produce and sell nf-180 medicated feeds for poultry and swine.)

You can list these benefits on your own feed tags

With nf-180, you can make your feed tags more than a routine listing of ingredients. Actually, nf-180 can turn your feed tag into one of your most effective sales tools. Why? Look at the benefits you can promise when nf-180 is in the feed:

Layers (continuous low level): Increase egg production, improve feed-egg ratio, extend egg-laying period, maintain greater laying performance during stress, improve hatchability and increase production in the early laying period.

Swine: Treat necro (bacterial enteritis, necrotic enteritis, black scours) and vibrionic (bloody) dysentery.

Booster feeds: The nf-180 label carries more poultry disease prevention, treatment and control uses than any other feed medication today.

We urge you to get the full facts on nf-180 medicated feeds and how they can be of service to you. Write or wire us . . . or ask your Hess & Clark salesman for new information which he can supply.

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MINNEAPOLIS DULUTH

ciation manager knew he could handle. In a six-week period, by working together, the production credit association was able to make loans to our customers amounting to over $50,000."

We have also found that farmers like to talk with their creditor across the table or out in the field. They like to talk to someone who knows the hazards of farming. They like to deal with someone who appears to be interested in a sound credit service for them and not a cold and distant finance company. They like to deal with an organization which works out with them just how and when the loan will be paid, as best suited to their own operations—a sound loan for them as well as a safe loan for the lender.

I do not have any advice for you about how to run the feed industry, but I would like to leave one thought with you. The farmer has only one job left to do in the agricultural industry—and that is production. This whole thing as it has developed today—integration, contract farming, or, the old way of selling one load of feed to feed out one bunch of cattle—is not good business. This thing of lending money to do one specific job is not good business for ourselves, or for the man with whom we do business. Rather, we must look at the complete job to be done and realize he is the producer, he is the foundation of this business from which we earn our livelihood, and that it behooves us, as individual businessmen, to work toward strengthening his position and keep him free and independent.

Scientists Report Progress in Isolating Shipping Fever Virus

URBANA, ILL.—University of Illinois scientists have found a relationship between an influenza-like virus and shipping fever. This disease in cattle may be similar to the common cold in man.

A report just published by Dr. A. B. Hoerlein and Dr. M. E. Mansfield, University of Illinois College of Veterinary Medicine, in cooperation with researchers of the National Institutes of Health, relates significant progress in investigating this virus, which was first isolated in man.

The virus, called "para influenza 3," commonly causes an infection in calves during their first few weeks in the feedlot. The effect varies. The infection may be mild and unnoticed in an animal, just as a slight cold may be mild in a person.

Although the infection has been found in all groups of calves studied, Dr. Horlein says further research will be needed to establish a direct cause-and-effect relationship between the "para influenza 3" virus and shipping fever.

Shipping fever involves "stress," a virus, and a bacterial infection. Although the animals respond to treatment, the cost of treatment and the resulting weight losses cause a substantial loss in feeding operations. In Illinois alone, weight losses cause a loss of over $2 million a year.

Present research is aimed at preventing this disease and the weight losses that accompany it.

The events leading to shipping fever appear to be as follows: An animal arriving in feedlot is weakened by stress. This stress results from such things as weaning, handling, transporting and changing feed. In this weakened condition, the animal is susceptible to a viral infection which further lowers resistance so that bacteria already in the respiratory tract of the animal can produce the disease called shipping fever.

Dr. Hoerlein and Dr. Mansfield have already started another research project that will involve over 2,500 feeder cattle. This project will extend into late fall. The broad scope of this research is possible only through the cooperation of many farmers, livestock associations and veterinarians throughout Illinois.

The first report of this project is given in the August issue of the Journal of American Veterinary Medical Assn.

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Extending Pellet Mill Die Life

"Improved die surface finish and subsequent gains in production rates and die life can be obtained with: (1) Better abrasive polishes; (2) durable metal platings or coatings; (3) improved die alloys."

By R. L. Patterson, R. A. Bates, D. Foster and A. J. Kathman
The Procter & Gamble Co.
Cincinnati

R. L. Patterson

EDITOR'S NOTE: The accompanying article is a report released by the Procter & Gamble Co. on its research project dealing with extending pellet mill die life. The research was conducted in connection with the industrial research department's work on the use of fats in feeds. This report was first presented at the Feed Production School in Kansas City. R. L. Patterson, a University of Kentucky chemistry graduate, has been with P&G since 1945 and for the past five years has been head of the industrial research department. He has been in charge of development effort on fats for feeds, including nutritional and pelleting programs. R. A. Bates has been with the company since 1953 after receiving chemical engineering degrees from Ohio State University. For 18 months he directed the pilot plant pelleting work. David Foster, Jr., has been in the P&G engineering division since graduation from Yale University. A. J. Kathman attended the University of Cincinnati and has been with the company for 31 years. For the past three years he has worked on the technical aspects of handling and using fat in feeds. He coordinated the production mill tests in the pelleting research program.

INTRODUCTION—The use of pelleted feeds has been increasing rapidly for a number of years. In 1958, 40 million tons of feed were produced (1), approximately 60% of which was processed as pellets. The advantages gained from pelleting have become well established. Nutritionally, pelleted feeds increase the rate of gain and feed efficiency in livestock and poultry and, to the grower, they offer the advantage of reduced dust and better handling in automatic feeders.

Williams (2) has described a corrosion problem on pellet die hole surfaces which has become known in the past few years. The corrosion leads to reduced pellet production rates and shortened die life. It appears to be associated with one or more of the following developments, each of which has proven to be desirable for its intended purpose and has been widely adopted:

(1) The use of harder alloy extrusion dies. These impart good abrasive, wear-resistance characteristics and have done much to overcome the erosion or wear type of deterioration associated with softer dies.

(2) The development of high energy rations with high protein and low fiber content. These have clearly demonstrable advantages from the nutritional standpoint (3,4) and are less abrasive than earlier formulas.

FIGURE 1. Laboratory Corrosion Studies

Metal specimens	% H_2O	% Sulfuric acid	Corrosion Rates—mils per year*—Animal—Low fatty acid	Animal—High fatty acid	Vegetable—Low fatty acid	Vegetable—High fatty acid
Mild steel	.5	.005	5	6	..	..
	.5	.03	6	6	..	..
	3.0	.005	13	13	..	..
	3.0	.03	11	12	..	..
Carburized AISI 8620	.5	.018	2	4	0	3
	50.0	.018	53	79	35	34

*Two mils or less is considered non-corrosive; 20 mils would require only reasonably minor maintenance. (Corrosion Data Survey, 1954.)

FIGURE 2. Relative Lubricity of High and Low Fatty Acid Fats
Four-Ball Test Data

Temperature—°F.	Torque values*—Low fatty acid fat	High fatty acid fat
150	100	114
175	114	112
200	114	112
225	114	118
250	114	124
275	114	84**
300	110	100
325	110	134
350	110	136

*Measured in inch grams.
**Dip in torque typically follows shearing of rough surface.

(3) The use of fat in feeds. In addition to its high energy value which is important from the nutritional standpoint, fat gives higher production rates, less wear on equipment and better dust control. Poe and Hastings (5) showed that animal fat effectively decreases the power requirements of the equipment in pelleting.

(4) The employment of more steam and higher temperatures in conditioning the mash for pelleting. Experience has shown this gives higher production rates and harder, more durable pellets.

The net effect is that many dies no longer deteriorate from mechanical or abrasive wear but suffer from a pitting type of corrosion. When pitting starts, production rate and die life are adversely affected unless the feed formula is changed to a type with which the corrosion is not associated.

The fact that the widespread use of fat and an awareness of the prob-

FIGURE 4. Rotating vertical ring die used at pilot plant.

FIGURE 3

FLOW SHEET FOR PILOT PLANT

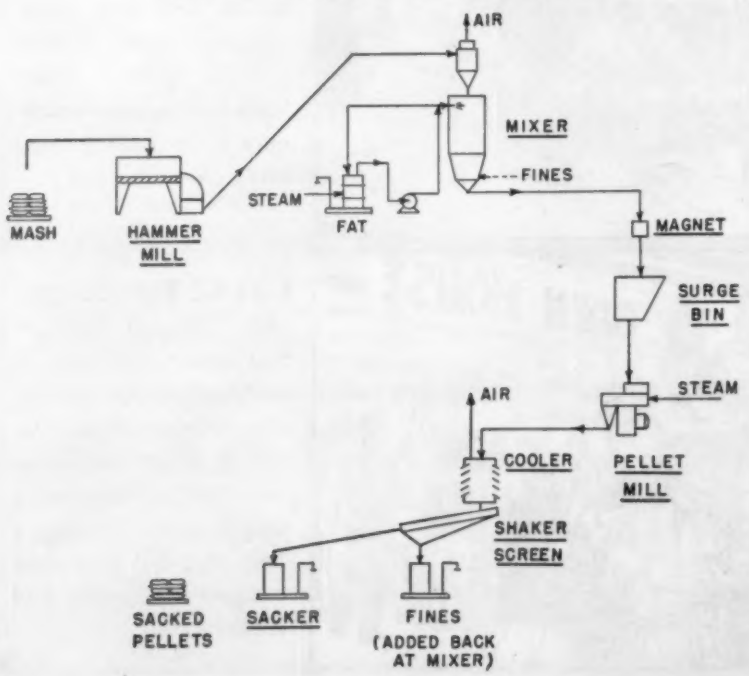


FIGURE 5. Data Recorded at Pilot Plant

Reading	Range Covered			Comments
Once per Five-Hour Run				
Fat				
Type	Triglycerides, fatty acids and mixtures from animal and vegetable sources			
Free fatty acid content	3-80%			Was controlled
Level added to mash	2%			Kept constant
Mash (Composite Sample)				
Fat content of "as received" mash	3-4%			
		As received	After grinding	
Sieve analysis of mash	On 10 mesh	5%	2%	Varied somewhat from car to car
	On 20 mesh	35%	30%	
	On 50 mesh	40%	70%	
	Through 100	0%	0%	
Moisture content of mash	11-13%			Higher in hot, humid months
Production				
Average production rate	Up to 40 (100 lb.) bags/hour			Basis for evaluation of performance
% Fines	10-20%			Recycled semi-continuously
Pellets (Composite Sample)				
Fat content of pellets	5-6%			
Moisture content of finished pellets	11-13%			
Average pellet hardness	2-8 Kg./¼ in.²			By Stokes tester, 25 pellets per determination
Dies				
Die number	———			For performance history
Die size	5/32 by 1½ in. to 2¼ in.			Standardized on 1¾ in. thickness found best in early trials
Once per Half-Hour During Each Five-Hour Run				
Temperature of added fat	175° ± 5° F.			
Steam pressure	30 psi			
Motor load	25-35 amps.			Kept as high as practical (motor cuts off at 40 amps.) short of mill plugging or refusing feed
Feeder setting	Up to 40			Arbitrary scale, 40 maximum
Temperature of conditioned mash	140°-160° F.			Kept constant throughout each run after optimum determined
Moisture content of conditioned mash	14-16%			Varied with moisture content of "as received" mash
Mill throughput	Up to 5,000 lb./hour			
Temperature of pellets from pelleting chamber	160°-190° F.			Varied with motor load

FIGURE 6. Left, die with normal countersink; right, die with no countersink.

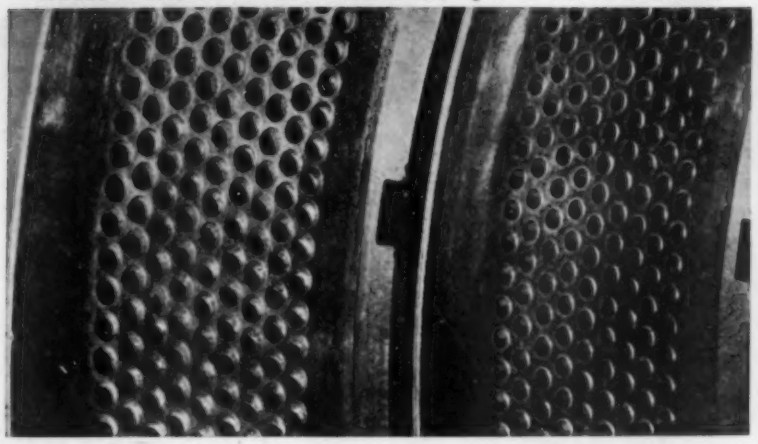


FIGURE 7. Effect of Die Hole Countersink on Pelleting Rate
Pilot Plant

	Average production rate* (100 lb. bags/hour)
Normal countersink	31
No countersink	27½

*After 25 hours' operation.

lem came along at about the same time may be partially responsible for the association of fat with the problem. Specifically, it has been reported that fats high in free fatty acid content are believed to contribute to the problem.

However, fats relatively high in free fatty acid have some desirable properties which have become well known in the industry. Combs, et al (6) found such fats to give nutritional performance equal to or better than other types. In commercial practice, it has been found that they also are associated with harder-than-average pellets.

In order to learn more about the factors responsible for the corrosion problem, this study was undertaken to obtain, under controlled conditions, answers which might lead to a solution. The work was aimed primarily at measuring the influence of fat in the pelleting operation. In addition, it was planned to evaluate other variables which might have a bearing on the problem.

LABORATORY STUDIES

Corrosion Tests—Since corrosion of dies appeared to be a factor in the pelleting problem, a series of laboratory corrosion tests was run to compare various types of fat. The tests were run under static conditions to see if differences in corrosion per se might be found since it would be expected that a meaningful dynamic test would be difficult to develop.

In these tests, both animal fats and vegetable oils of high and low fatty acid content were included. (In this paper, the term high fatty acid fats refers to fats in the 70-80% free fatty acid range and low fatty acid fats are those in the 10-20% free fatty acid range.) Three moisture levels, .5%, 3% and 50% were used, and in order to exaggerate the effect of acidity, sulfuric acid was added at .005%, .018% and .030% levels. The tests were run with reflux condensers where the metal specimens, mild steel and carburized steel of a type used in pellet dies, were continuously submerged for 30 days at 200° F. in the fat mixtures which were changed daily.

The results (Figure 1) show that under the conditions of this test: (1) Fatty acid content of the fat has no effect, (2) added sulfuric acid has no effect and (3) moisture content has an effect on mild steel at the 3% level and it causes pronounced corrosion (7) on the carburized steel at the 50% level.

From this work, it is concluded that fats are essentially non-corrosive, whether they are of animal or vegetable origin, or of high or low fatty acid content. However, moisture at high levels contributes to pronounced corrosion and should be controlled.

Since these tests were run under static conditions, the results appear applicable to storage and handling equipment such as tanks, pumps, pipes and valves and they indicate that moisture levels above about 3% should be avoided. (Note: In Figure 1, a corrosion rate of 20 mils per year will permit about 5-10 years life on properly designed equipment. A mil is .001 in.)

Private Laboratory Lubrication Studies — An independent research laboratory, Midwest Research Institute, was selected to evaluate the lubricating properties of high and low fatty acid fats. This work involved extrusion studies to measure pressure required for making pellets, sliding friction studies to determine co-efficient of friction at die-mash interface, and the standard four-ball tester for metal-to-metal lubrication. These tests showed no real differences in the lubricating properties of high and low fatty acid fats. Typical are the results of the four-ball test (Figure 2); the lower the torque value, the better the lubrication. In the temperature range 150°-300° F., which is believed to be the typical pelleting temperature range, both types perform well and are essentially equal.

From this work, it was concluded that fats are good lubricants, regardless of their fatty acid content.

PILOT PLANT PELLET MILL STUDIES

Equipment and procedure—In order to evaluate variables in pelleting, under practical conditions, a pilot plant using a 30 h.p. California Mas-

FIGURE 8

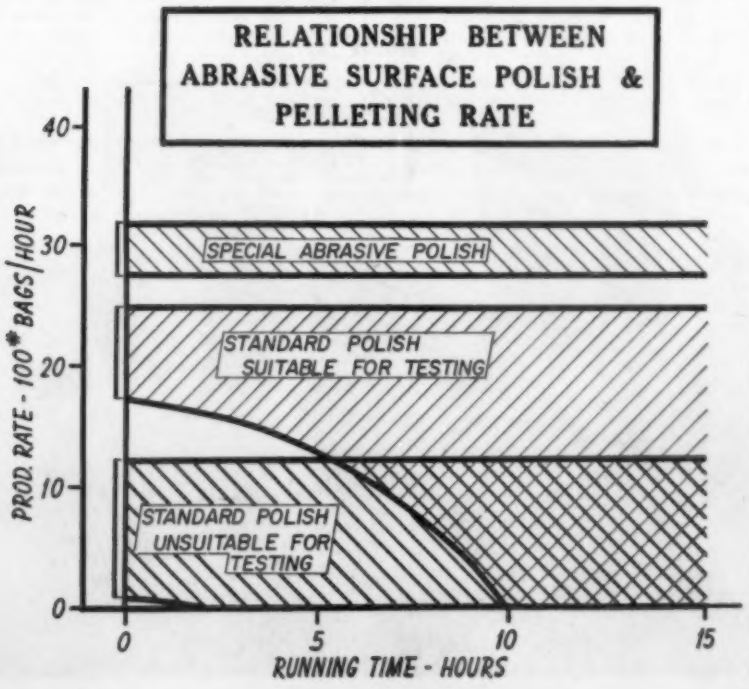


FIGURE 9. Pilot plant dies illustrating on the left, rough hole surface, and on the right, smooth hole surface. The smooth die was run longer than the rough die.

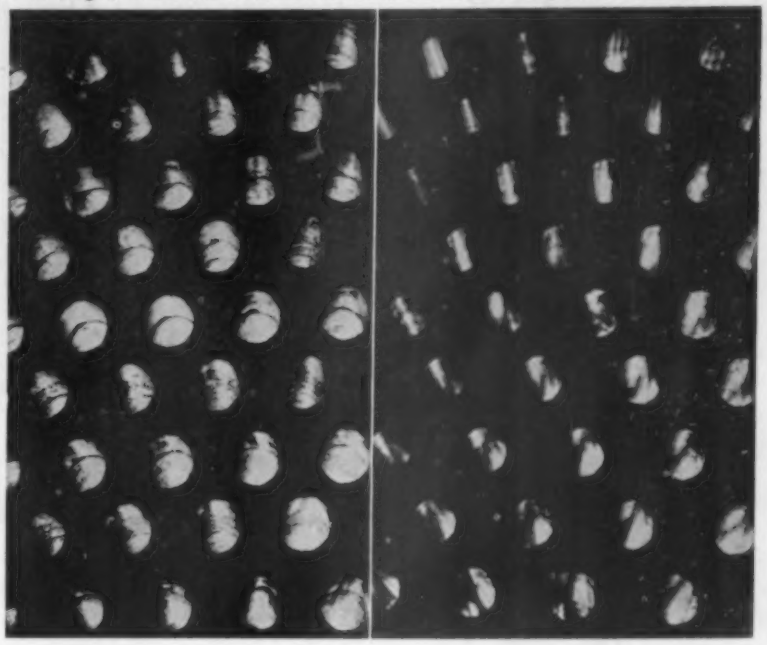
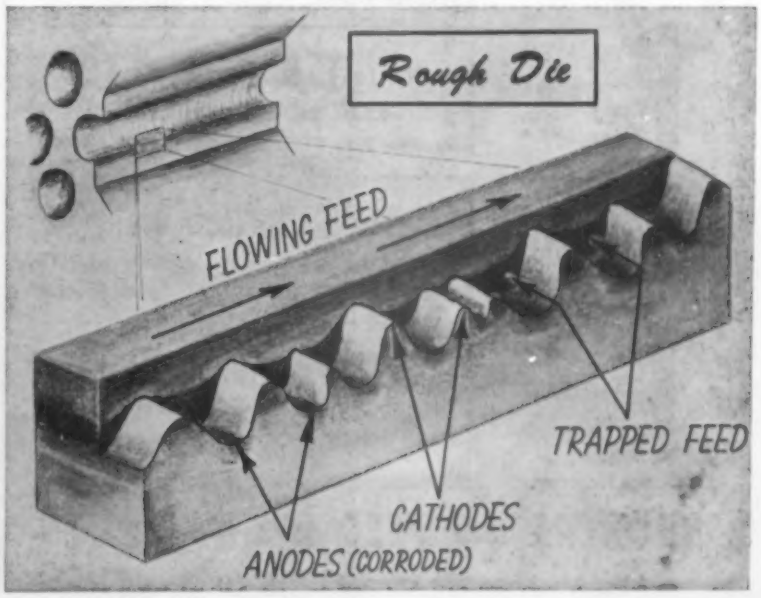


FIGURE 10. Examples of pitting corrosion on die hole surface. Left, early stage; right, advanced stage. (Specimen in picture on right courtesy of Sprout, Waldron & Co., Inc.

FIGURE 11



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BROKERS IN FEED INGREDIENTS

FIGURE 12

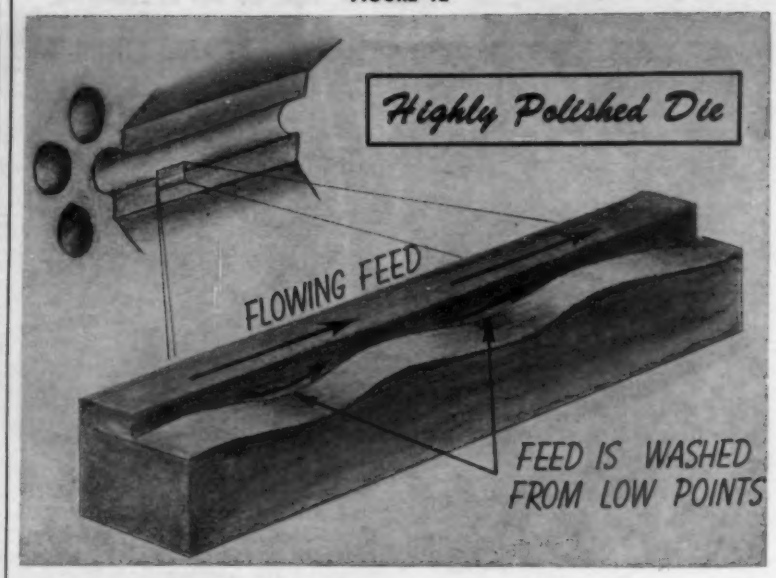


FIGURE 13. Effect of Die Hole Surface Polish on Pelleting Rate and Die Life 75 h.p. Production Mill

Die size	Standard Polish Life (tons)	Standard Polish Rate (100 lb. bags/hour)	Special Polish Life (tons)	Special Polish Rate (100 lb. bags/hour)
10/64 by 1¾ in.	2525	115	3468	134
12/64 by 1½ in.	1605	106	2492	127

Note: The 12/64 in. dies were used predominantly for crumbles production which gives high fines recycle and reduced rates and life.

ter Model pellet mill was put into operation. The mash used was a typical commercial high energy corn-soybean oil meal broiler finisher supplied by a production feed mill with the ingredients kept constant to eliminate mash formula as a variable. The total fat content was 5-6%, of which 2% was added. It contained 1,004 calories of productive energy per pound and 20.2% crude protein.

Figure 3 is a flow sheet of the pilot plant installation. The mash was put through a hammer mill, conveyed by air through a cyclone to the mixer where the weighed quantity of fat for each batch was sprayed on from the top. From the mixer, the mash was conveyed over a magnet to the surge bin from which it was fed to the pellet mill. Finished pellets were raised by bucket elevator to the vertical cooler from which they were passed over a screen to remove fines, and then bagged. The fines were fed back into the system at the mixer on a semi-continuous basis.

Williams (8), Grahek (9) and Hultberg (10) have found that 3% fat is about the maximum that can be added to mash prior to pelleting to produce a firm pellet with present equipment. In this work, the added fat level arbitrarily was fixed at 2%.

Figure 4 shows the vertical rotating ring die used on the pilot plant mill. The hole diameter was 5/32 in. A thickness of 1¾ in. was established after early trials showed it to be a practical maximum for the test work.

At the beginning of each test period, the pellet mill was given a 15-min. warm-up period with a free-running feed mixture consisting of a 50-50 mixture of raw soybeans and soybean hull bran. In addition, new dies were given a 6-8-hour break-in period using the regular broiler finisher mash containing 4% rather than 2% added fat.

It was found that a minimum of five hours per run was required to give results statistically significant at a 5% risk level under the pilot plant conditions. The data recorded during these runs and the ranges covered in the experimental work are shown in Figure 5.

The conditions under which the pilot mill was operated were designed to exaggerate differences in test conditions or test products where they existed. The controls normally varied to keep production rates up, such as the temperature of the conditioned mash and the motor load were kept fixed during each test run. Only feeder setting, which directly controls the production rate, was allowed to vary. Critical operating conditions were established and the pilot mill became quite sensitive to differences by: (1) Keeping conditioned mash temperatures in the 140°-160° F. range as compared to 180° F. used in many production mills and by (2)

FIGURE 14

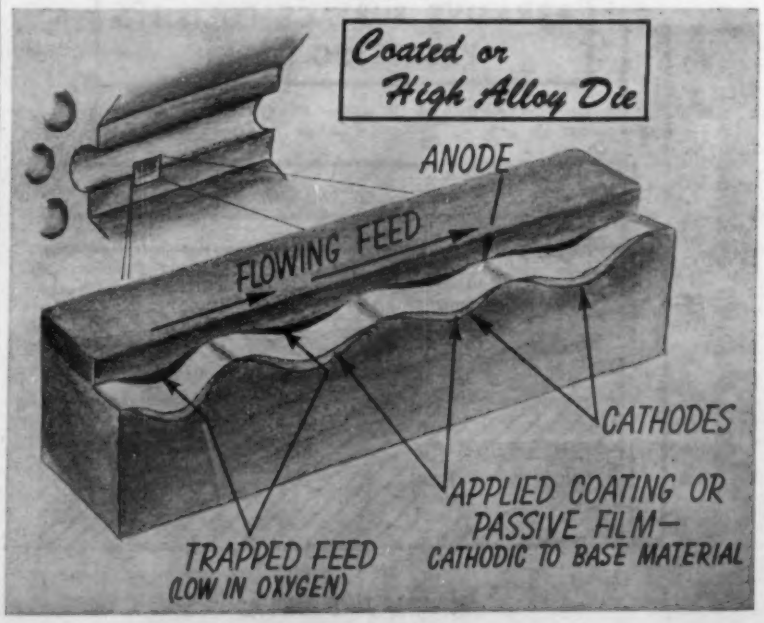


FIGURE 15

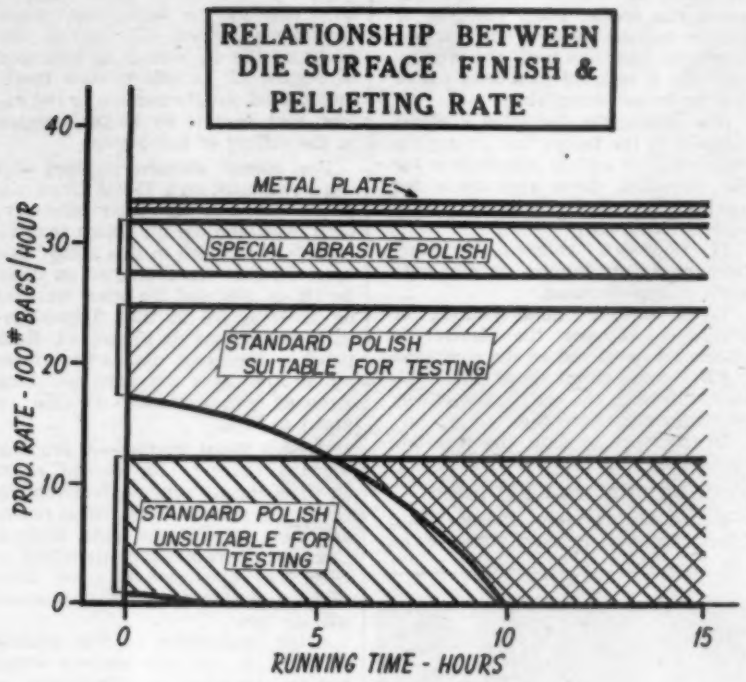


FIGURE 16. Reclamation of Used Dies
75 h.p. Production Mill
12/64 by 2-in. Dies

Die Number	Initial treatment	Life (tons)	Rate (100 lb. bags/hour)	Reclaiming treatment	Life (tons)	Rate (100 lb. bags/hour)
1	Standard Polish	775	114	Special Polish	318	125
2	Standard Polish	503	98	Plated	837	115
3	Standard Polish	168	113	Special Polish and Plated	1623	137
3				Replated	936*	114

*Tramp metal caused die to break.

using a minimum die hole size and a practical maximum die thickness. Production rates were generally lower than in a commercial mill; no attempt was made to establish optimum or maximum operating conditions.

Mash Particle Size—Since Williams (8), Grahek (9) and Hultberg (10) stress the importance of particle size of the mash on pellet production, the effect of grinding through a hammer mill, with 3/16-in. screen, was studied. The mash being supplied to the pilot mill had previously been ground in the production mill where it was formulated. It was found that the particle size variation was too small to have a significant effect on production rates.

Fat—A series of experiments was run to study the effect of the free fatty acid content of fat from both animal and vegetable sources on production rates. During this work, the only other fat characteristics which varied enough that they might have an influence on performance were iodine value and titer. Thus, they also were included in the study. The results showed:

(1) The source of the fat has no effect on performance.

(2) The effect of fatty acid varied with the extrusion dies used in the following manner:

(a) On one group of dies, production rates were very low regardless of the fatty acid level and some of these dies were removed from service after only a few hours running time because they would not accept feed.

(b) A second group of dies was found to give wide production rate variations even on the same fat. Because of these variations, the only real differences found were in favor of fats having a free fatty acid content of 10-20% over those in the 70-80% range. In other words, there were no real differences between fats in the 10-20% range and those in the 20-70% range. This work provided the basis for the designation "low fatty acid fats" and "high fatty acid fats."

(c) A third group of dies was found to give relatively high production rates regardless of the fatty acid level. These dies performed so well that there were no real differences in performance between high and low fatty acid fats.

(3) Iodine value and titer have no effect on performance.

Die Countersink—In the test work on fats where differences were found in die performance, it was observed that there appeared to be some variation in the degree of countersink at the hole entrances. To determine the significance of this, a comparison was made between a die with normal countersink and another with no countersink (Figure 6). The results (Figure 7) show a 13% higher production rate for the die with countersink. However, the effect of countersink was found too small to account for the several hundred percent differences found in die performance.

Die Surface Finish—A correlation between the kind of abrasive surface polish given the test dies and their performance was established as illustrated in Figure 8. The poorest group had been given a standard polishing treatment, but they would not produce more than about 1,200 lb. per hour with any type of fat under the pilot plant conditions. Some refused to accept feed after only two hours running time.

The intermediate group had also been given the standard polishing treatment. Some of these dies produced as much as 2,500 lb. per hour and were still running well after 100 hours. The poorer members of this group refused feed after as little as 10 hours of running time. It should be remembered that it is with this group of dies that performance differences were found between fats with 10-20% free fatty acid and those with 70-80% free fatty acid.

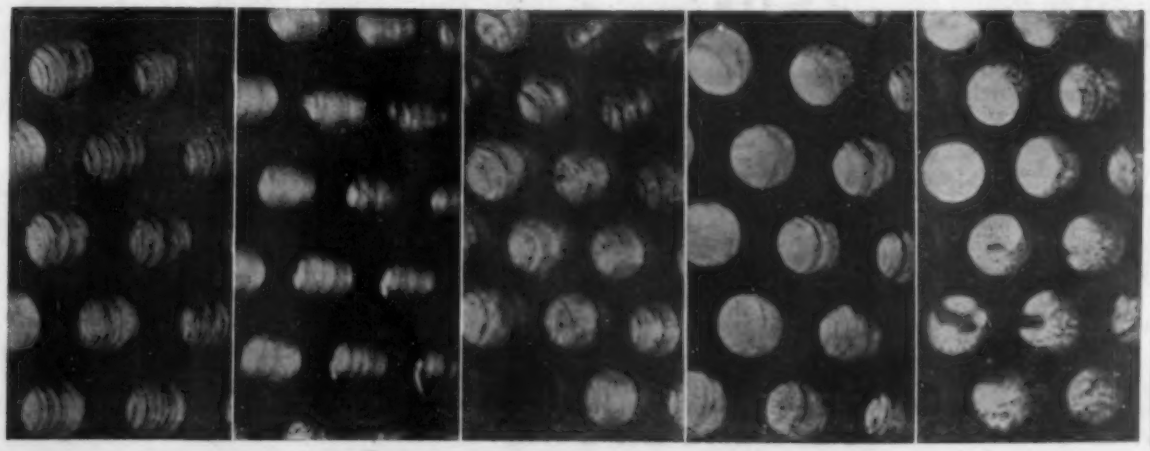
In the best performing group were dies that had received a special type of abrasive polish not commercially available. Without exception, these performed well; the fatty acid content of the fat had no effect. Even after 200 hours, these dies continued to produce at about 3,000 lb. per hour.

Another type of special abrasive polish was tested and it gave essentially the same performance, about 3,000 lb. per hour, as the first type. This treatment is commercially available, but not on a mass production basis.

The data used in the preparation of Figure 8 was collected during the 18-month period the pilot plant was operated. The extrusion dies were supplied by one manufacturer except the one die given the second type of special polish. Under these conditions, it was established that the variable having the greatest effect on production rate is the finish on the extrusion die hole surface.

Figure 9 illustrates the difference between rough and smooth dies observed at the pilot plant. The rough

FIGURE 17. Die hole surface history of a rough production mill die reclaimed by nickel plating. Left to right: After standard polish and 168 tons' production, removed from service; after special polishing and plating; after 1,623 tons removed from service; after replating, no pre-polish; after 936 tons when broken from tramp metal. (Photos courtesy McMillen Feed Mills division, Central Soya Co.)



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die had been given a standard polish and the surface is typical of a die nearing the end of its effective service life. The smooth die had been specially treated and even though it was run longer than the rough die, the surface remains in good condition.

HYPOTHETICAL CONSIDERATIONS

Relationship Between Corrosion and Surface Finish — Experience at the pilot plant made it apparent that there is a relationship between low production rates and the corrosion on the surface of the die hole. However, because of the short life of some of the test dies, it was difficult to see the pitting as observed on regular production dies. Figure 10 shows the surface of a pilot plant die when the first pit marks are beginning to develop compared to a regular production die where corrosion is well defined and follows the lines or score marks made by a drill or reaming tool. It is hypothesized that the corrosion is actually due to electrochemical action developed at points of imperfections created by drill or other tool marks on the die surface.

Oxygen Concentration Cell—It has been known for some time (11) that corrosion by electrolytic concentration cells is an important factor in many corrosion problems. Differences in electrical potential between points on a single surface can be developed from differences in environment. The concentration of metal ions in the corroding solution can become greater at one point than another with the metal surface at the point of lower concentration being the anode, where corrosion takes place. This is called a solution concentration cell.

Concentration cells also may be formed in the same manner from differences in oxygen concentration. It is theorized that this is the kind of cell which is developed on the surface of a rough die (Figure 11). At the low points or valleys on such a die, the feed is trapped or pocketed and becomes starved for oxygen, forming the anode. As current flows, the metal leaves the anode. Thus, the pits or valleys become deeper and surface roughness increases until the production rate is reduced to a level where it is no longer acceptable.

Overcoming the Corrosion Problem—Based on the theory that an oxygen concentration cell is responsible for the corrosion, three approaches for solving the problem suggest themselves. These are:

(1) Improved abrasive polishing techniques to minimize or eliminate surface imperfections.

(2) A passive metal coating or plating to dampen the electrolytic effects and thus reduce the corrosion.

(3) Passive metal alloys which also should dampen the electrolytic effects and reduce the corrosion.

In the work to date, the first two techniques have been evaluated.

PRODUCTION MILL STUDIES

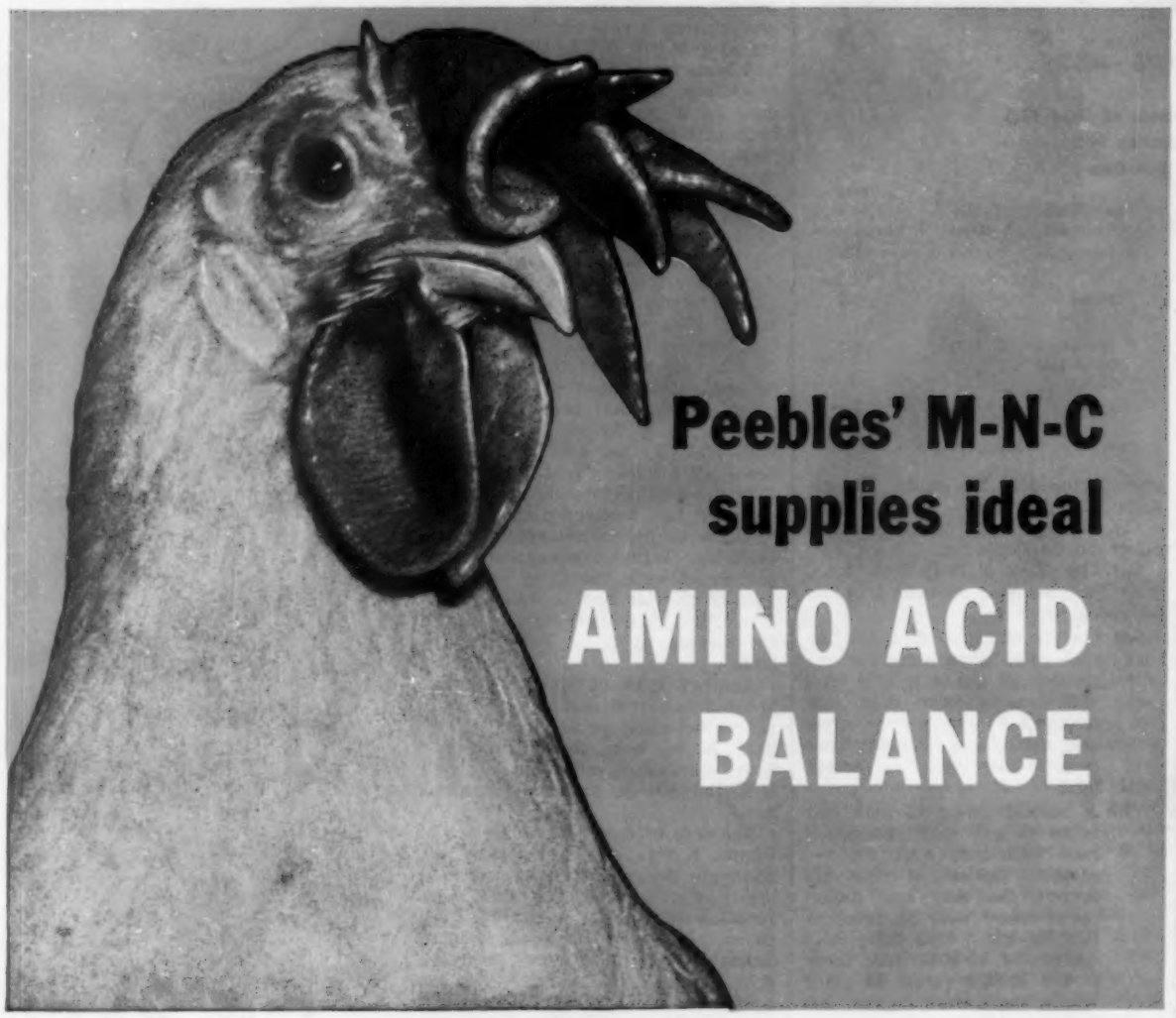
Improved Abrasive Polish—Two types of special abrasive polish tested at the pilot plant gave marked increases in production rates because, according to the hypothesis, these treatments reduce the size of the peaks on the die surface as indicated in Figure 12. In effect, such treatments level out the surface to the extent that feed is no longer trapped in the valleys or low points.

Two special abrasive polishes also were evaluated on a 75 h.p. Universal production mill for their effect on both rates and die life. More than 20 dies were included in this study. One special polish was evaluated on 10/64 by 1¾ in. dies and the other was run on 12/64 by 1⅝ in. dies. Typical results are shown in Figure 13. Both polishes increased production rates by 15-20% over standard polishing methods and extended die life by about 40-50%.

Passive Metal Plating—A properly selected coating (12) should resist electrochemical action effectively by forming a passive or corrosion resistant film on the die hole surface. Coatings of metals such as nickel or chromium and certain oxide films such as produced on stainless steels will do this.

After application of the coating (Figure 14) the hole surface would become resistant to differences in oxygen concentration. Then, as abrasion eventually wears away the coating from the peaks, the base metal would become exposed and a cell would be re-established. Now, however, the current would flow between two different metals with the more passive one being in the low points. The peaks would become the anodes and begin to give up metal ions. As corrosion proceeds, the surface should become smoother until eventually the peaks are reduced to valleys and production rates drop, or mechanical wear leads to oversized pellets. In either event, it might be possible to recoat the die.

Commercially available high nickel, low phosphorus, chemically deposited plating applied to a thickness of .004 in. was first evaluated at the pilot plant. The die to be plated was selected from the group that had given the poorest performance. It had run for only 35 hours when it refused to accept feed. The die was cleaned, sent out for plating and retested. After plating, it produced at the rate of approximately 3,300 lb.



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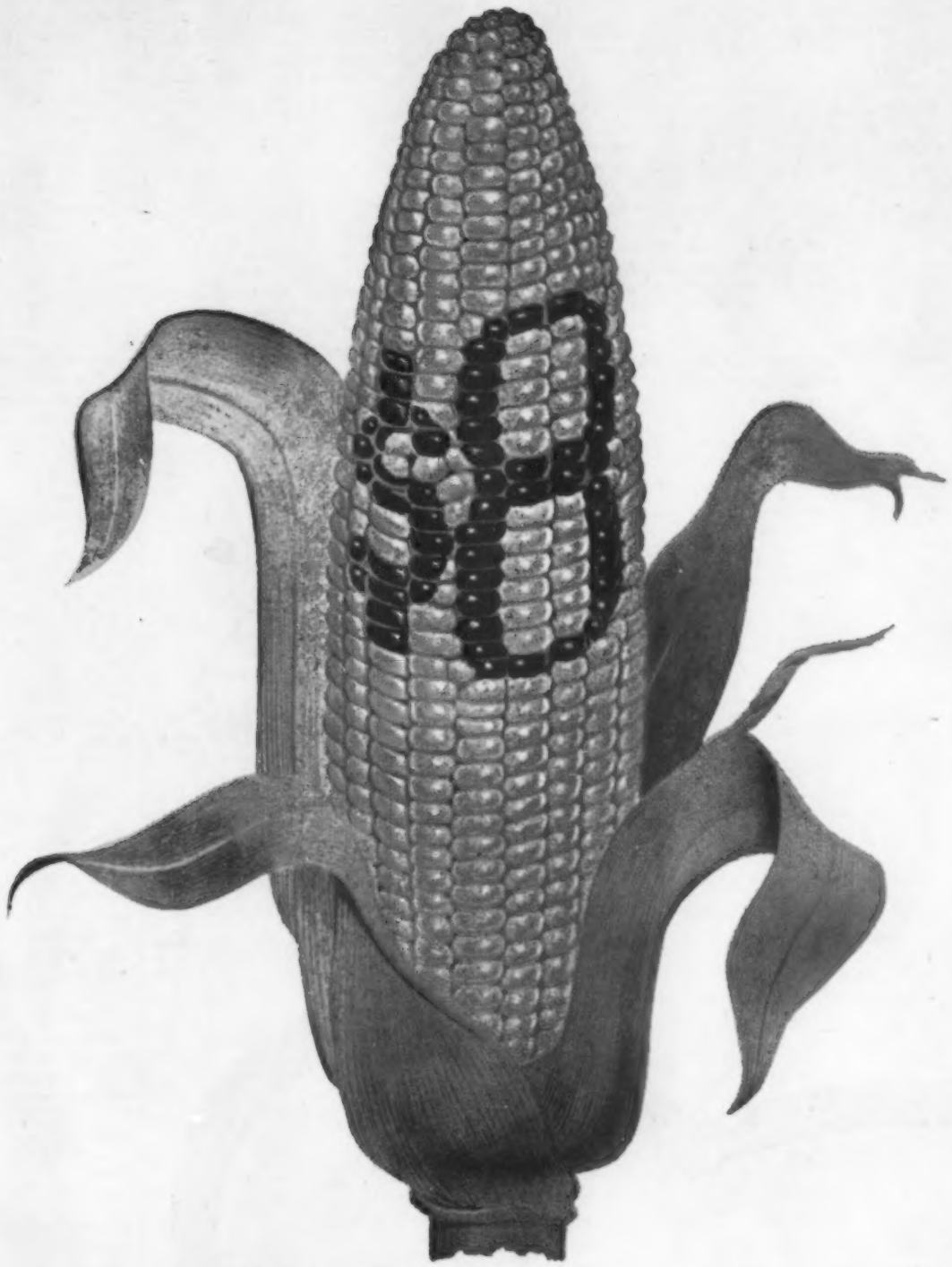

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per hour or 10% higher than the rates obtained on the dies given the special abrasive polish. It showed no tendency toward reduced production after more than 100 hours. Based on experience with the plating, a fourth classification of surface finish can be added to the pilot plant performance chart (Figure 15).

Reclaiming Used Production Dies—Three dies removed from service because of unacceptable performance were selected for a commercial production mill test to compare the effect of special abrasive polishing and plating for reclaiming used dies. The dies were identical in size and material and were manufactured by the same process. Each had been given a standard polishing. Figure 16 shows that the first die, which had run for only 775 tons at a rate of 114 bags per hour, was given a special polish after which it produced 318 tons at 125 bags per hour. The second die, after 503 tons at 98 bags per hour, was given the nickel plating, after which it produced 837 tons at 115 bags per hour. The third die, which had run for only 168 tons at 113 bags per hour, was given the special polish and then plated. It produced 1,623 tons at 137 bags per hour. This die was replated without pre-polish and had produced 936 tons at 114 bags per hour when tramp metal caused it to break. Figure 17 illustrates pictorially the history of this die.

This evidence indicates that for production mill dies, the best reclaiming procedure is to employ both a special polish and the plating. The good performance of the plate at the pilot plant without a pre-polish was probably due to the sensitivity of the pilot mill which forced dies out of service before they became roughened from pitting to the extent they do in production mills.

It should be noted that since in all work to date the plate was applied to standard die holes, the pellets were undersized. This is due to an 8-10% reduction in the cross sectional area of the hole. Higher rates would be expected with dies drilled oversize to compensate for the plate thickness.

Pellet Hardness—In the pilot plant, it was found that pellet hardness is inversely proportional to production rates. As might be expected under these conditions, as the resistance of the feed to flow increases, so does pellet hardness.

However, in the production mill tests on the reclaimed plated dies, it was observed that it was possible for more steam to be added in the conditioner and, even though the production rates were higher, the pellets appeared to be somewhat harder than normal. This also is not surprising since harder pellets are associated with higher conditioning temperatures (8).

Cost of Plating—The plater's experience with pellet dies is limited to those reported in this paper and to some others still under test. More experience in plating dies is needed before a firm cost estimate can be obtained. Since the surface area to be plated is a controlling factor in the amount of plating required, the size and number of holes and the die thickness are directly involved. The size of the market also will affect the cost on a commercial production basis.

However, from the work to date, it appears the process may have merit from the cost standpoint. If it is assumed that a 75 h.p. production die costs $450 and produces 2,250 tons, the die cost per ton is 20¢. If the cost of cleaning and plating were to amount to $125 and polishing an additional $25, then a pre-polished, plated die would have to produce at least 750 tons to meet the 20¢ cost. Applying these assumptions to the production mill tests already described, it is noted that the die which was plated without pre-polish gave 837 tons production at a cost of 15¢ ton. The die given the special polish and then plated gave 1,623 tons or a cost of 9¢ ton. The replate, which did not have a pre-polish and was running well at 936 tons when it broke, produced at 14¢ ton. These results make the plating appear attractive as an economical method for reclaiming used dies.

CURRENT STATUS

Plated New Dies—Because of its durable nature, the plating could be expected to extend die life further than the better abrasive polishing techniques on new dies. Work is underway to make this evaluation in a production mill. Tests have been run to determine effective die core and plate hardness and this knowledge is being applied in the current work.

Improved Alloy Dies—In the same manner that the plated die surface is more passive to electrochemical action, special metal alloys of the stainless steel or high nickel type should be effective also. Die manufacturers are working on this approach and one new die of this type is being introduced to the market at this time.

SUMMARY AND CONCLUSIONS—Based on a three-year study involving laboratory, pilot plant and production mill testing aimed at evaluating the effect of added fat and other variables on pelleting, the following conclusions are drawn:

A. Fats are essentially non-corrosive.

B. Fats are good lubricants.

C. Corrosion in dies results from electrochemical action (oxygen concentration cells) at surface imperfections.

D. The effect of free fatty acid content of the fat on pellet production rate varies with extrusion dies, which

(Turn to DIE LIFE, page 76)

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Nebraska Company Offers Swine Package Covering All Phases of Operations

By ROGER BERGLUND
Feedstuffs Managing Editor

A complete swine package—covering all phases of swine production, plus feeder pig purchasing or feeding-out agreements where desired — is now being offered in the midwestern area served by a Nebraska feed manufacturing firm.

The firm is the O. A. Cooper Co., headquartered at Humboldt, Neb., and with mills at Humboldt and Beatrice, Neb. Production units set up under the program are now in operation in four states—Nebraska, Iowa, Kansas and South Dakota.

Actually, the program is not brand new. It got under way about a year ago and has been showing steady growth, with gradual expansion, since that time, according to Guy L. Cooper, company president.

Guy L. Cooper

He describes his firm as a "conservative company which believes in making haste slowly." And, he notes, while the program is now complete in all phases and has continued to expand, it has not been pushed any faster than a measured pace. "We have felt it best to develop this program carefully and rather slowly," he asserted.

The package covers everything from producing baby pigs to feeding out growing-finishing hogs, and the farmer may get into the entire program, or he may specialize in either production of feeder pigs or the raising of feeder pigs for market.

The program includes: (1) Houses and equipment; (2) help in construction and in arranging for financing; (3) the feeds; (4) breeding programs, and (5) management programs. All facilities, supplies and arrangements are obtained through the Cooper company and its dealers.

Also, the company provides where desired a contract under which it purchases feeder pigs produced in the farrowing and baby pig unit, and it offers an agreement under which farmers with the confinement growing-finishing unit may feed out pigs owned by the company.

FHA loans and conditional sales contracts may be used to finance the housing and equipment. "The program was developed to provide a sound, practical set-up for a specialized swine operation within easy reach of the average farmer," Mr. Cooper said.

The idea, he added, was to incorporate the best features recommended and proven by the colleges and large swine raisers into a package the average farmer can afford.

"Nothing Radical"

"Don't look for anything radical; it just isn't there," company literature tells farmers. "Don't expect anything you don't know about. The Cooper Swine Package includes only the features of swine management that you know well and would like to have. It doesn't ask you to test ideas—Coopers have already done that. All it does is tie up the things you would like to have in a well-planned, time-proven, complete package . . .

"Hogs are good property; still, the average farmer takes only about one third of the profit potential that is available through a practical program of breeding, sanitation management and feeding which can beat national averages by: (1) Increasing litter size from 8 up to 10.5 head; (2) cutting mortality from 25% down to 5%; (3) reducing time to market from 6 months to 4½ months; (4) reducing pounds of feed per pound of gain from 4.5 down to 3.0."

There are two basic units in the Cooper program—(1) the "pig palace," the housing unit for farrowing and raising baby pigs to weaning or feeder pig weight, and (2) the "Shoat Shack" for growing and finishing pigs on concrete.

Environment Control

Mr. Cooper said the idea behind both units and the programs is to control environment (through feeding, housing, equipment and management systems) and heredity (through suggested "simple and inexpensive" breeding programs). Also, the program advocates multiple farrowing to "multiply profits."

In addition to selling and arranging for financing of the housing and equipment, the Cooper firm provides help and supervision for the farmer in erecting the buildings, particularly the concrete floors. In fact, the company has steel concrete forms, custom made for the houses, so that it can provide the correct floor pitch and foundations with a minimum of cost and time and no expense for forming.

Mr. Cooper notes that the company is now booked several weeks ahead on the building and erection of the new facilities.

CONTRACT AND AGREEMENT—For farmers with "Pig Palaces," the company will contract for a specified period to purchase all feeder pigs produced and raised in the unit. These are purchased on a basis tied to top quotations on No. 1 meat-type hogs on the day the feeder pigs are delivered. In return, the farmer agrees to follow specified feeding, management and breeding programs.

Also available is an agreement under which farmers raise feeder pigs to market weight. The firm places company-owned feeder pigs with the growers, who agree to follow specified practices and then receive a certain percentage of the gross selling price. The grower furnishes the facilities and labor, and the company supplies feed and medical care, plus arrangements for marketing in consultation with the grower.

Conventional feed financing and feed contracts also are available.

FEED—The feeding programs in both housing units are part of Cooper's "Life Cycle Program," Mr. Cooper explained. The latest developments in modern feeds, he said, are provided through all phases of feeding the gilt or sow and baby pigs and growing-finishing pigs.

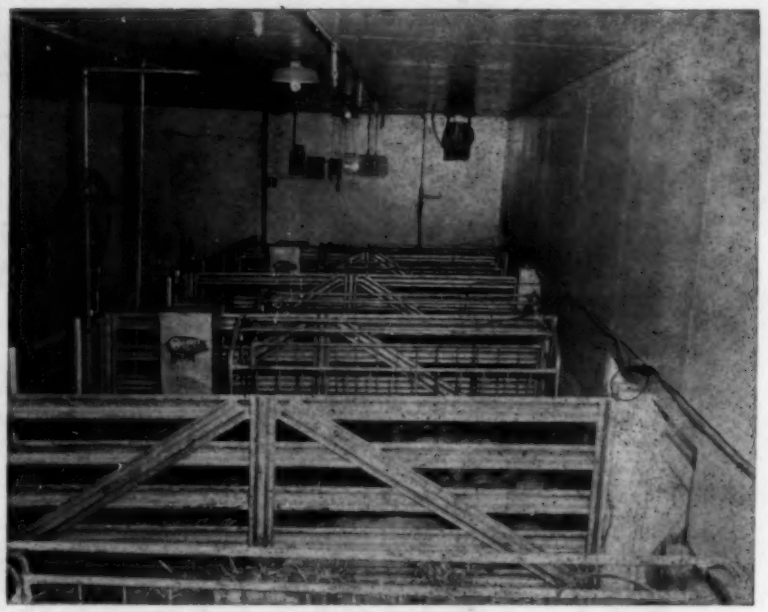
Complete feeds, delivered in bulk into automatic feeders, are generally used in the confinement units, but free choice feeding also may be practiced.

Provision for use of the Cooper company's feeds is made in the regular housing and equipment programs as well as through the feeder pig purchase contract and feeding-out agreement mentioned above.

PIG PALACE—The typical Pig Palace for farrowing and raising of baby pigs is a building 30 ft. wide, 40 ft. long and 8 ft. high inside, designed for multiple farrowing. Up to six farrowings a year may be obtained, Mr. Cooper said, but four are suggested, particularly during the first year. It is divided into 12 farrowing pens, 10 ft. by 6¼ ft. The unit is described as being cool and dry in the summer and warm and dry in the winter. Larger size units also are available.

The floor and 24 in. of the side wall are of concrete. The building above the concrete sidewalls is made of precut sections of tempered Masonite

PIG PALACE—An exterior view of the Cooper "Pig Palace" for farrowing and raising baby pigs showing sun porch, which can be provided on either side of the window-less building.


PENS AND CRATES—This photo, taken inside a Pig Palace, shows all-steel pens and steel farrowing crates, which are used as creeps as soon as the sow is turned into the pen with her pigs. When the pigs are weaned and the sow is removed, the crate can be cleaned, folded and stored.

SHOAT SHACK—A typical Cooper Shoat Shack unit for feeding out growing-finishing hogs is 60 ft. long and has four pens. The accompanying article describes this unit more fully.

VENTILATION—In the sumer, hinged ventilation doors along the rear wall of the Shoat Shack may be raised for better movement of air through the shelter.

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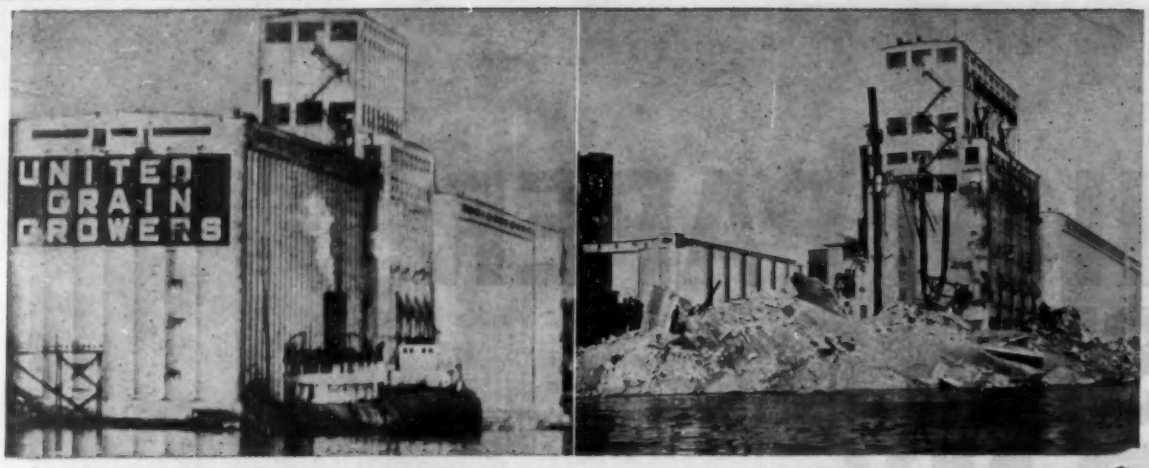

ELEVATOR ANNEX COLLAPSES—More than 2 million bushels of grain were dumped (right) into Lake Superior at Port Arthur, Ont., when an annex of the United Grain Growers, Ltd., terminal elevator collapsed (Feedstuffs, Sept. 26). Total damage has been estimated as high as $10 million. The plant had been shut down after the day's operation and no workers were hurt. It was reported that a tidal wave was caused when the grain fell into the water, grounding a tug, dislodging half a dozen float planes moored nearby and flooding a pumping station. Investigators are determining whether the cause of the collapse was covered in the elevator's insurance risk. The picture to the left shows what the elevator looked like before the annex collapsed.

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with a 3-in. blanket of insulation between the two sheets of Masonite. The rafters or roof supports are made of "truss-type" supports. The ceiling is also of tempered Masonite, with a blanket of insulation over it. Part of the standard equipment is a ventilating fan which exhausts moist air in the winter and can be reversed to blow in air for cooling in hot weather.

The farrowing pens on each side and the alley-way down the middle are sloped about 4% for draining and easy cleaning. The alley-way is wide enough to drive a truck through. The wide doors at each end also furnish cross ventilation in summer. Windowless construction, said Mr. Cooper, reduces upkeep and enhances insulating value summer and winter.

The pens are formed of all-steel gates and partitions and are described as "rigid and strong but can be taken down, moved and cleaned easily." The steel portable farrowing crates, Mr. Cooper said, are designed to save more pigs and save on labor. The sows deposit little or no manure in the crates, he added, because they are let outside twice a day for feed, water and exercise. The crates are used as creeps for the pigs' feed and water as soon as the sow is turned into the pen with the pigs, around the fifth day. When the pigs are weaned and the sow is taken out of the pen, the crate can be folded, cleaned and stored, providing more space for the growing pigs.

There are self-feeders for the sow and self-feeders for the pigs to be used inside the creep. If desired, there are individual heat lamps for each litter and/or thermostatically controlled space heaters (electric or propane). Sprinklers for use in hot weather are included. Automatic waterers are in each of the 12 pens. This is in addition to the small fountain waterer in the creep. Sun porches, with a sloped floor draining into the gutter, self-closing doors for sows and litters and extra outside self-feeders are optional.

The building portion of the unit can be financed by FHA over a five-year period, with semi-annual payments. No down payment is required. The equipment can be financed by a conditional sales contract over a three-year period, with a nominal down payment and semi-annual payments thereafter. The total investment in the basic 12-pen unit is about $5,000 including around $1,000 cash for the equipment down payment, concrete and plumbing and wiring.

Mr. Cooper said that "with a low-side profit of $6 per pig, at 35 lb. weight, the farmer will have a minimum of $2,400 per year for his labor and investment." A larger return, he said, will be realized if the unit is operated more intensively or if the pigs are also finished to market weight.

SHOAT SHACK — In connection with the Shoat Shack, Mr. Cooper cited the trend toward confinement raising of pigs, and as advantages in growing and finishing hogs in this type of unit, the company literature lists such things as: (1) Equal or faster gains than on pasture, (2) little or no increase in feed per unit of gain, (3) better environmental control, (4) improved sanitation and parasite control, (5) elimination of dust and mud, (6) greater opportunity for mechanization to reduce labor, (7) year-around production, (8) closer operational control, (9) small area required, (10) release of land for more profitable use and (11) little or no greater investment in building and equipment.

Each unit in the shed area of this "weaning-to-market hog factory" is 12 ft. deep and 15 ft. wide. The pen area is 12 ft. deep and 15 ft. wide, giving a total front-to-back depth of 24 ft. A typical unit is 60 ft. long, with

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four 15-ft. pens. However, the building can be built in any multiple of 4 ft. and pens can be any length desired. Two pigs can be finished to market weight per foot of building, or 120 head in the 60-ft. building.

The floor in the pen area drops to a level 4 in. lower than the level of the shed area. A 2-in. pipe is installed 3 in. above the floor level at the step-off; this serves to hold bedding in place and provide a step-over which trains pigs to distinguish between the sleeping area and the feeding-dunging area.

A slope of 1 in. in each 3 ft. in the building and on the feeding floor facilitates cleaning and makes possible installation of mist spray units. An 18-in.-wide gutter is provided along the front side, outside the fence.

The Shoat Shack faces south and has a front roof overhang said to serve a double purpose: In the winter when the sun is low, the sun will shine back into the shed area for solar heating; in the summer when the sun is high, the gable keeps the entire shed area shaded. During the winter the back and side walls are completely closed; in the summer, hinged ventilation doors along the entire rear wall may be raised for better ventilation. A mist spray is provided for summer cooling.

A 12-hole automatic feeder is provided for each two pens and is positioned as part of the divider between the two pens. Complete feed is generally delivered in bulk directly into the feeders, which require filling once or twice a week. Separate supplement or mineral feeders may be added if the preference is for self-feeding grain. A two-hole automatic electrically heated waterer is provided in each unit.

The walls and back of the Shoat Shack are built in 4-ft. sections of half-inch plywood, framed with 2 by 4's. Rough lumber is provided for lining. The roof is made of tempered Masonite, nailed to truss-type rafters and caulked.

Mr. Cooper said the standard 60-ft. Shoat Shack, including all of the materials and feeders and waterers, plus superintendence of construction and concrete forms, will cost about $2,000. The facilities can be financed over a five-year period with FHA financing and a conditional sales contract.

BREEDING—The Cooper company provides a manual on cross-breeding and suggests programs to be followed for production of meat-type hogs with various cross-breeding advantages.

"We feel that the whole swine package has been well-planned and engineered," said Mr. Cooper, "and the swine package had our poultry package behind it as proof of what a well-engineered package can do if worked out carefully, slowly and thoroughly.

"The pilot plant at Humboldt was run through the full cycle of several farrowings, and the final test was to sell several units to practical farmers, privately, before the package was made generally available."

Wirthmore Appoints Central Sales Head

WALTHAM, MASS.—The duties of Sumner A. (Ham) Claverie have been enlarged to include administration of the central sales region, consisting of Olean, N.Y., and Toledo, Ohio, divisions, according to Robert D. Emmons, general sales manager for Wirthmore Feeds, Inc., Waltham.

S. A. Claverie

Mr. Claverie joined Wirthmore in 1951 and has since served as dairy serviceman, assistant dairy supervisor, assistant division manager and division manager.

He will continue to maintain his office at Wirthmore Mills, Olean, N.Y.

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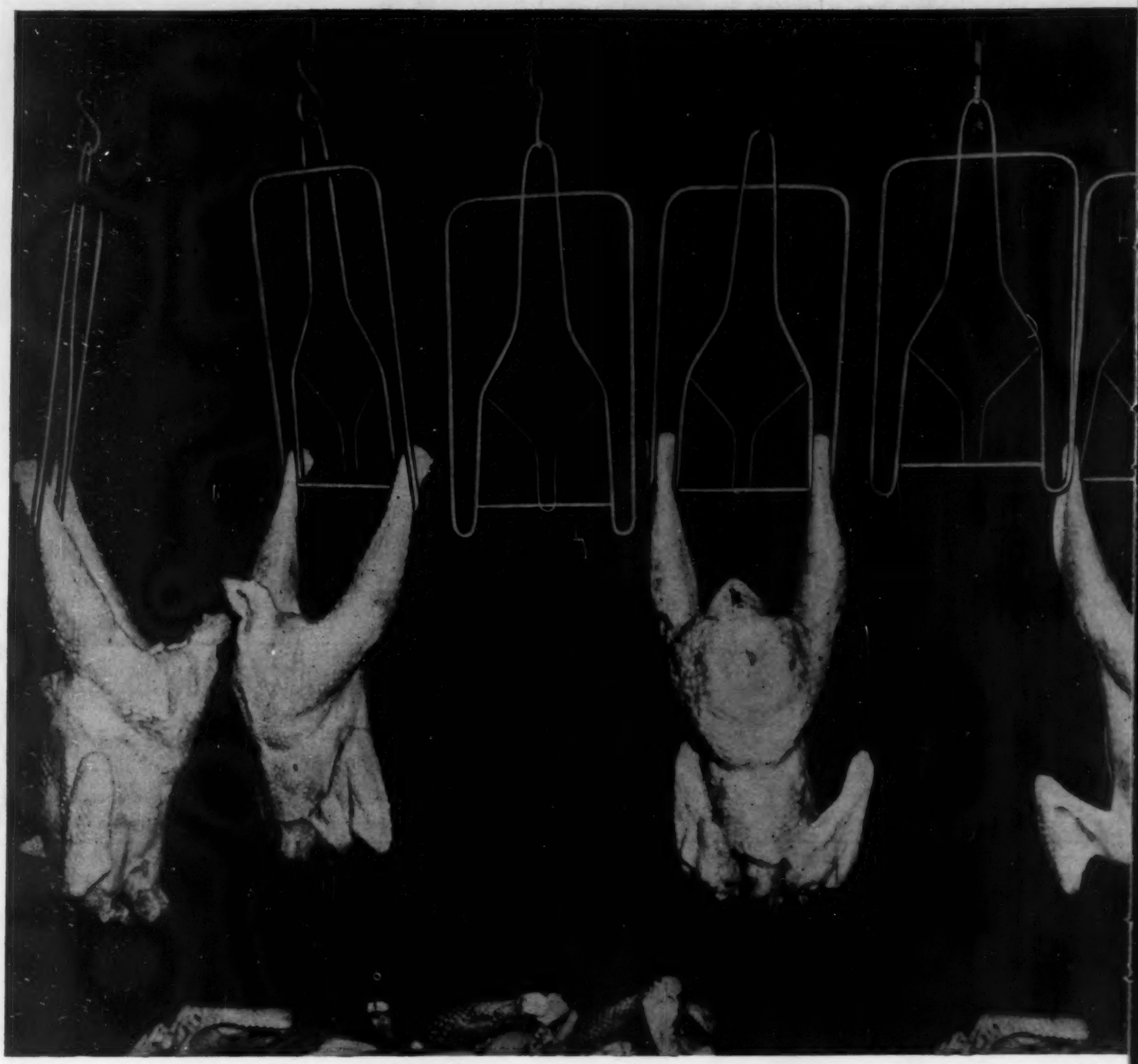

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Workshop Speakers Named for Swine Industry Sessions

AMES, IOWA—A broad cross section of farmers, college specialists and representatives of allied industries is included in the list of speakers named for the workshop sessions at the National Swine Industry Conference planned for Nov. 19-20 on the campus of Iowa State University here.

The workshops will provide opportunities for open discussions on a wide range of swine industry problems, according to Keith Myers, National Swine Growers Council, conference chairman.

Each workshop will have two short talks by college or industry specialists and a third talk by a producer or a home economist, representing the consumer. The workshop speeches are intended to set the stage for the discussion to follow.

On the speaking program for the general sessions of the conference will be addresses by Ezra Benson, secretary of agriculture; James Hilton, president, Iowa State; O. B. Ross, University of Illinois; Elmer Kiehl, University of Missouri, and Homer Davison, president, American Meat Institute.

Speakers for the various workshops will be:

Breeding and Reproduction—H. L. Self, University of Wisconsin; Wilbur Plager, American Yorkshire Club, and John Olson, Worthington, Minn.

Nutrition—R. J. Meade, University of Minnesota; Robert Grummer, University of Wisconsin, and Stanley Hurst, Manilla, Ind.

Housing and Equipment—Joe Burnside, Southern Illinois University; T. E. Hazen, Iowa State University, and Joe O'Bryan, Hiattville, Kansas.

Management Systems—G. B. Phillips, Alabama Polytechnic Institute; Edgar Urevig, Lewisville, Minn., and Bernard Collins, Clarion, Iowa.

Disease Control — James D. Caldwell, University of Nebraska; Dr. Frank J. Mulhern, U.S. Department of Agriculture, and A. B. Evans, Cedarville, Ohio.

Marketing Live Hogs—R. J. Reierson, University of Wisconsin; M. B. Kirtley, University of Illinois, and Stuart Miller, Forrest, Ill.

Pork Processing and Merchandising—Dave Siebel, Rath Packing Co., Waterloo, Iowa; Glen Curtis, IGA Stores, and Reba Staggs, National Live Stock & Meat Board.

Quality Goals in Pork—R. A. Merkel, Kansas State University; James Rhodes, University of Missouri, and Frances Carlin, Iowa State University.

NEW FARM SUPPLY FIRM

OKLAHOMA CITY—Central Farm Supply, Stillwater, Okla., has been granted a charter with capital stock at $50,000. Incorporators are Marvin W. Cross, Stillwater, and Kenneth D. Erwin and Ruth N. Erwin, Omaha, Neb.

Study Made of Turkey Grading

WASHINGTON—Basing of turkey prices to growers on the ready-to-cook grade and yield of the birds largely avoids both overestimates and underestimates of the value of live flocks, research by the U.S. Department of Agriculture indicates.

Four fifths of the overestimates and underestimates found in pricing live flocks were large enough to be important to growers and processors, researchers of the USDA's Agricultural Marketing Service report. In a few instances the ready-to-cook value of the birds differed by hundreds of dollars from the estimates for live flocks.

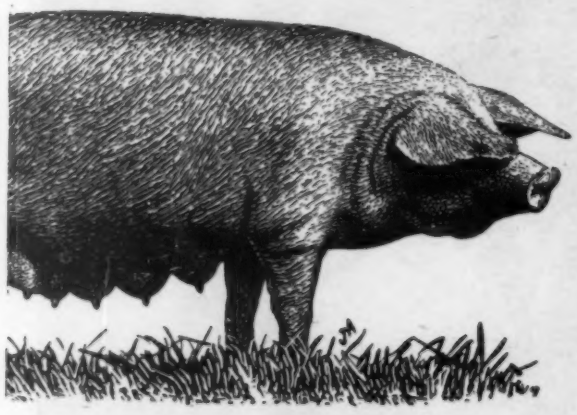
There was no great difference, in this study, between the amount of the overestimates and the underestimates of value of live birds. Therefore, turkey processors usually would find that the prices they pay on either basis would average out to about the same level during a season. However, the farmer who sold only one or two flocks a year often would be either substantially overpaid or underpaid for his birds.

A copy of the report, "Comparative Accuracy of Two Methods of Pricing Turkeys," Marketing Research Report No. 359, may be obtained from the Office of Information, U.S. Department of Agriculture, Washington 25, D.C.

WAREHOUSE ESTABLISHED

ALBIA, IOWA — Walnut Grove Feed Co., with headquarters in Atlantic, Iowa, has established a new warehouse here.

The warehouse has a capacity to store 100 tons of feed, and will serve as a pickup station for Monroe county farmers. Dennis Westerling is manager of the warehouse.



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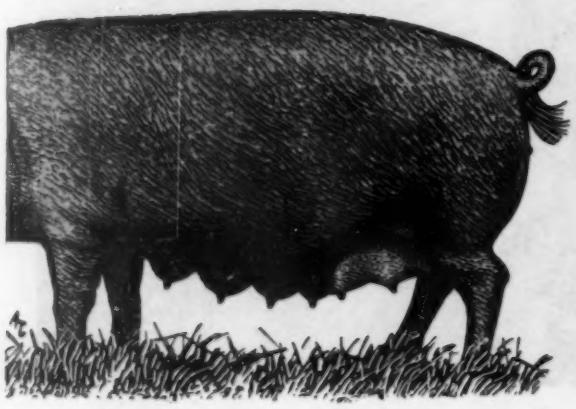

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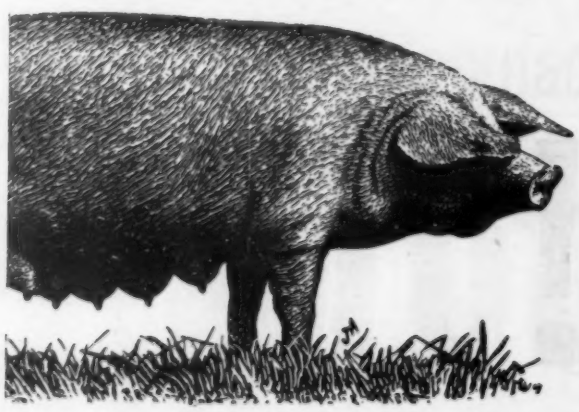

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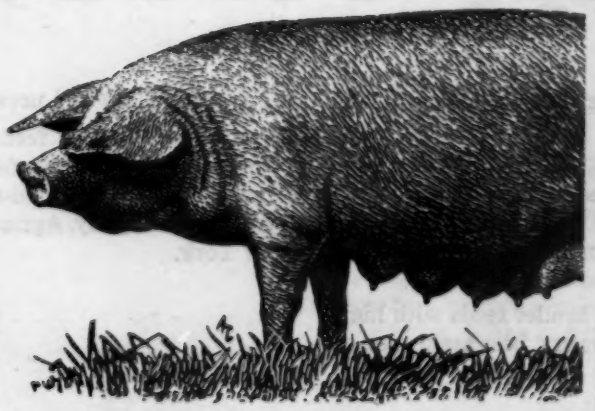

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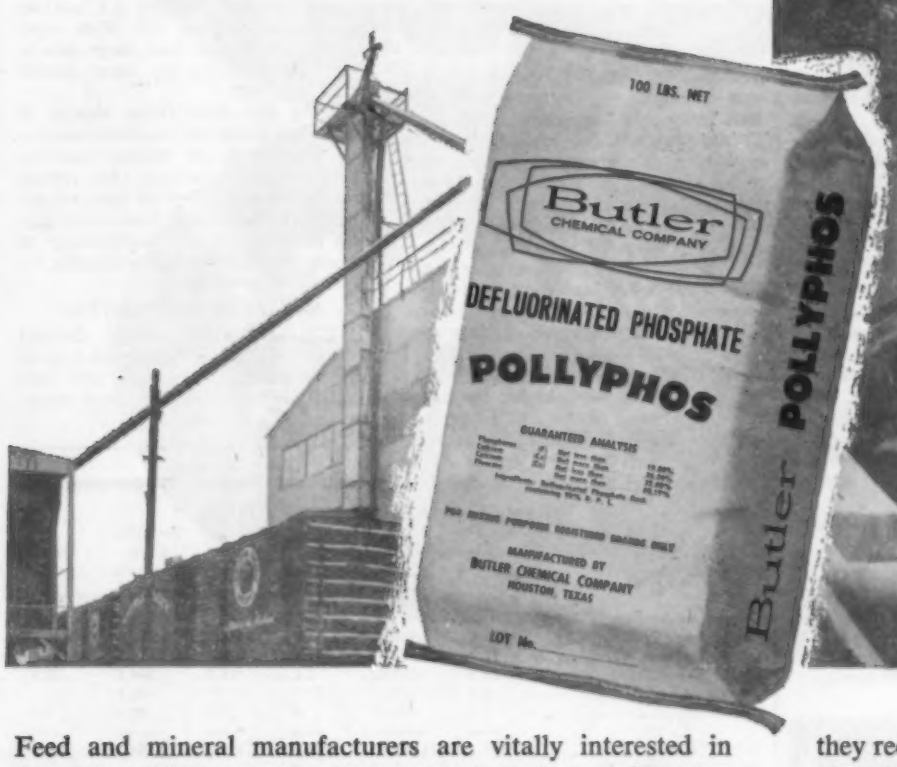

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WAREHOUSE AND OFFICE—Shown are the warehouse and office in the feed mill recently built by the Greeley (Kansas) Cooperative Assn. Frank Riley, mill manager, says the co-op does a volume of business amounting to more than $2 million annually, and employs a total of 24 workers.

Kansas Cooperative Builds $112,000, 50-Tons-a-Day Feed Mill, Warehouse

GREELEY, KAN.—A new feed mill and warehouse costing approximately $112,000 has been constructed for the Greeley (Kansas) Cooperative Assn., acording to Frank Riley, mill manager.

The mill will be able to produce about 50 tons of feed a day. Equipment includes a 60 h.p. hammermill, roller and crimper mill and a 50 h.p. combination pellet and molasses unit.

A crumblizer to produce pellets, crumbles and other kinds of feed is located in the basement. There is also an automatic weighing buggy for taking materials from bins to the mixer and a 12,000 gal. molasses storage tank for storing wet molasses for adding to feeds.

Ingredients can be unloaded from boxcars into either the old or new warehouse from the railroad siding between the two buildings. Bulk can be unloaded from boxcars into the mill.

Grain Bank

The farmers can bring in any amount of grain, deposit it in the grain bank at the elevator warehouse and, when he wants feed, his own grain is used in manufacturing the finished product.

The cooperative's enterprises include the service elevator, feed mill, warehouses, storage elevator, seed cleaning plant, a crib for ear corn and a 500 bu. dryer for handling wet grain.

The main building, where the offices are located and general business is transacted, is across the street at the end of Greeley's business section. Oil and gas storage tanks, storage for materials and supplies, including wire fencing, grain bins, tanks, feeders and waterers, are located to the north of this building.

The cooperative also has a grocery store, a locker plant and a service station uptown.

According to Mr. Riley, the co-op does a volume of business amounting to more than $2 million annually, and employs a total of 24 workers.

Lavern Scheckel is general manager of all the cooperative's business in Greeley as well as the branch plants at Harris and Osawatomie.

MIXER AND PELLET MILL—Emmett McCollester, in charge of operating the branch feed mills; Frank Riley, feed mill manager; Lavern Scheckel, Greeley (Kansas) Cooperative Assn., and Wayman Dunlap, Consumers Cooperative field man, inspect the 50 h.p. Wenger multi-duty molasses mixer and pellet mill recently installed by the Greeley co-op.

ADDITION—The Greeley (Kansas) Cooperative Assn. has added this $112,000 building to its elevator facilities. The tail portion of the building is the feed mill for manufacturing pellets, crumbles and other types of feed.

Season's Feed Use Gains 6%

WASHINGTON—Commercial feedstuffs consumption during the first 11 months of the 1958-59 feeding season was 6% greater than for the same months a year earlier, the U.S. Department of Agriculture has reported. Total use was 18.5 million tons, an increase of about 1.1 million tons.

Most of the increase was in soybean meal, but supplies of cottonseed, peanut, fish and alfalfa meal were all substantially above last year. Supplies of other feeds were at about last year's level.

August consumption of oilseed meals was 855,800 tons, a drop of 60,600 tons from July. Usage during the first 11 months was about 950,000 tons greater than during the same period in 1957-58.

Consumption of soybean meal for the 11-month period of 8.3 million tons was about 950,000 tons above 1957-58. Linseed and copra meal supplies were below last year, while peanut meal supplies were sharply above. Exports of oilseed meals, mainly soybean meal, totaled nearly 500,000 tons October through August, as against 291,200 tons during the same months a year earlier. Oilseed meal imports totaled 164,000 tons this year, compared with 132,700 tons last year.

USDA said output of wheat millfeeds continued below last year because of higher flour outturn from the wheat milled. Supplies of millfeeds for the first 11 months of the season totaled 4.2 million tons, or about 2% below last year. Distillers' dried grain supplies, at 320,000 tons, were 24% above the earlier season.

Shipments of alfalfa meal October through August totaled 1.2 million tons, an increase of 5%. Fish meal supplies of 421,500 tons were nearly 100,000 tons above the same period a year earlier.

During the first three weeks of September feedstuff markets continued the trend of earlier months. Prices gradually declined, then turned upward the final week as demand improved at the lower level and supplies became tighter, particularly in soybean meal and wheat millfeeds.

ADDITION COMPLETED

BUHL, IDAHO — Buhl (Idaho) Feed & Ice Co. has completed a large addition to its bean, seed and feed plant. It is to be used for seed cleaning and as a warehouse.

Feedstuffs: Production, Stocks, Foreign Trade and Domestic Disappearance October, 1958-August, 1959, and 1957-58

Feedstuff	Stocks Oct. 1*	Production	Imports†	Exports†	Domestic disappearance	Stocks Aug. 31*
	October, 1958-August, 1959—1,000 tons					
Oilseed meals:						
Soybean	48.1	8,860.7	0	474.2	8,333.0	101.6
Cottonseed	71.2	1,926.7	129.4	5.2	2,034.3	87.8
Linseed	26.3	397.6	3.5	19.8	384.9	22.7
Copra	0.6	104.2	31.1	**	135.9	....
Peanut	1.5	70.9	0	**	70.6	1.8
Total	147.7	11,360.1	164.0	499.2	10,958.7	213.9
Grain by-products:						
Wheat millfeeds	**	4,179.4	75.2	32.9	4,221.7	**
Rice millfeeds	**	213.8	**	**	213.8	**
Gluten feed and meal	**	950.8	**	**	950.8	**
Distillers dried grains	2.2	327.0	**	**	320.3	8.9
Brewers dried grains	4.9	214.2	**	**	212.7	6.4
Total	7.1	5,885.2	75.2	32.9	5,919.3	15.3
Other feeds:						
Fish meal	**	305.5	116.0	**	421.5	**
Alfalfa meal	439.7	1,175.8	**	**	1,211.6	403.9
Total feeds	594.5	18,726.6	355.2	532.1	18,511.1	633.1
	October, 1957-August, 1958—1,000 tons					
Oilseed meals:						
Soybean	54.7	7,693.0	1.4	276.5	7,388.0	84.6
Cottonseed	209.7	1,787.1	60.1	7.0	1,971.5	78.4
Linseed	63.7	389.0	7.3	5.9	436.6	17.5
Copra	0.7	109.8	63.9	**	173.6	0.8
Peanut	3.2	42.2	0	1.8	42.4	1.2
Total	332.0	10,021.1	132.7	291.2	10,012.1	182.5
Grain by-products:						
Wheat millfeeds	**	4,274.1	87.7	72.2	4,289.6	**
Rice millfeeds	**	216.8	**	**	216.8	**
Gluten feed and meal	**	944.5	**	**	944.5	**
Distillers dried grains	2.4	257.4	**	**	259.0	0.8
Brewers dried grains	4.0	207.1	**	**	206.8	4.3
Total	6.4	5,899.9	87.7	72.2	5,916.7	5.1
Other feeds:						
Fish meal	**	244.4	83.0	**	327.4	**
Alfalfa meal	441.5	1,104.9	**	**	1,148.7	397.7
Total feeds	119.9	17,270.3	303.4	363.4	17,404.9	585.3

*Stocks at processing plants only. †Partly estimated. **Not available.

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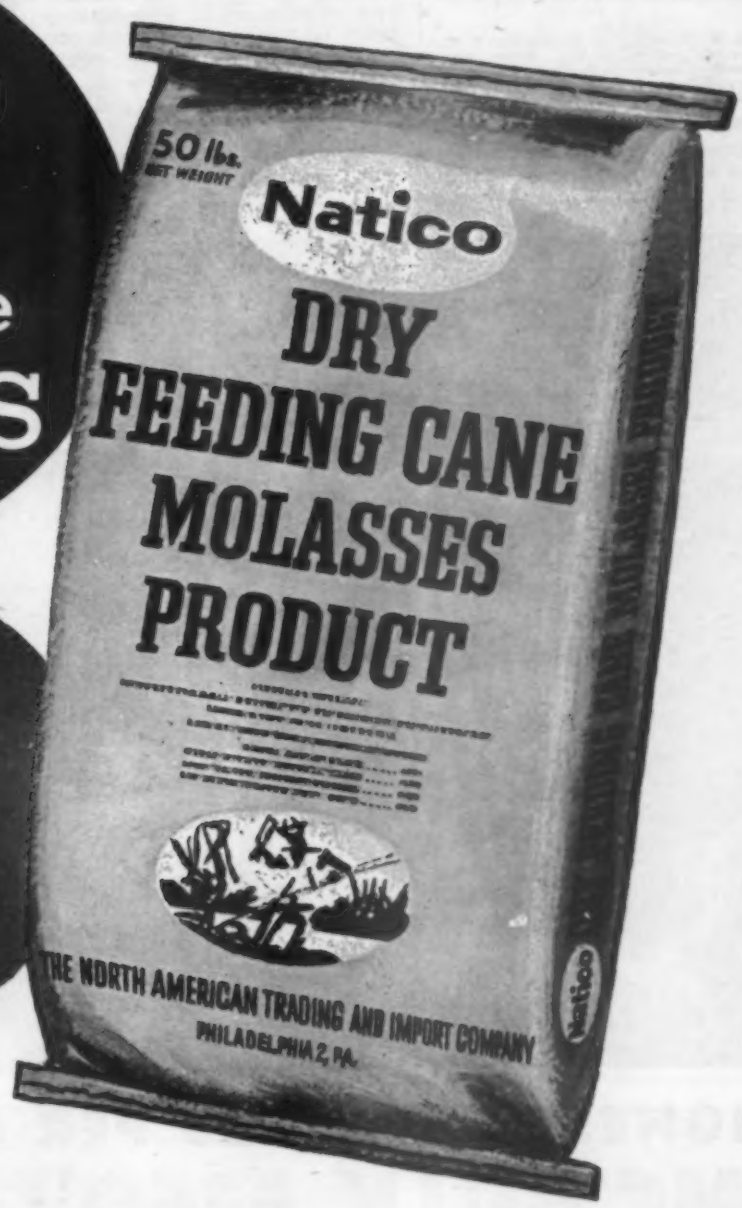

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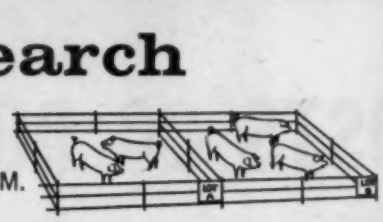
Putting Research To Work

BY SPENCER H. MORRISON, PH.D., D. V. M.



Effect on Reproduction of Feeding Diethylstilbestrol to Dairy Cattle

● C. B. Browning, G. B. Marion, F. C. Fountaine and H. T. Gier, Kansas Agricultural Experiment Station; Journal of Dairy Science, Vol. 42, No. 8, August, 1959, pp. 1351-1358.

ABSTRACT AND COMMENT

This paper represents the final report of work at Kansas to demonstrate the effects of feeding low levels (0-20 mg./cow/day) of diethylstilbestrol to dairy cattle. A preliminary report on this experiment was presented in June, 1956, and the conclusions of the present article are not greatly different from those presented then.

The reproductive behavior of the dairy cows fed diethylstilbestrol at levels varying from 5-15 mg. per 1,000 lb. bodyweight per day was not affected, but those receiving 20 mg. per 1,000 lb. bodyweight were possibly affected somewhat since 3 out of 10 cows receiving this level aborted calves at 140-190 days of term. There were no visible side effects of the estrogen feeding with the exception of a non-persistent hyperemia of the vulva 20-30 days following initiation of estrogen feeding which simulated some of the gross symptoms of estrus. This condition was not directly proportional to the level administered, nor was it apparent in all animals to the same extent.

Certain cattle were slaughtered during the experiment and no effects whatsoever were apparent on the ovaries, ovarian function, cycling and conception of the treated animals. This is probably due to the small amounts of estrogen entering the systemic circulation.

The effect of feeding stilbestrol to five pairs of identical twins included in the experiment on reproduction (31 cows total) has been previously reported (Browning et al., Journal of Dairy Science, Vol. 40, No. 12, pp. 1590-1598). It was shown that a slight increase in milk production was produced by feeding diethylstilbestrol during the complete lactation.

Purdue (1957) reported no effect on milk reproduction, body weight or feed consumption of lactating dairy cows fed diethylstilbestrol. Similar results have been reported by the U.S. Department of Agriculture at Beltsville (1957) with cows fed stilbestrol, and by South Dakota (1956) with implanted milking cows.

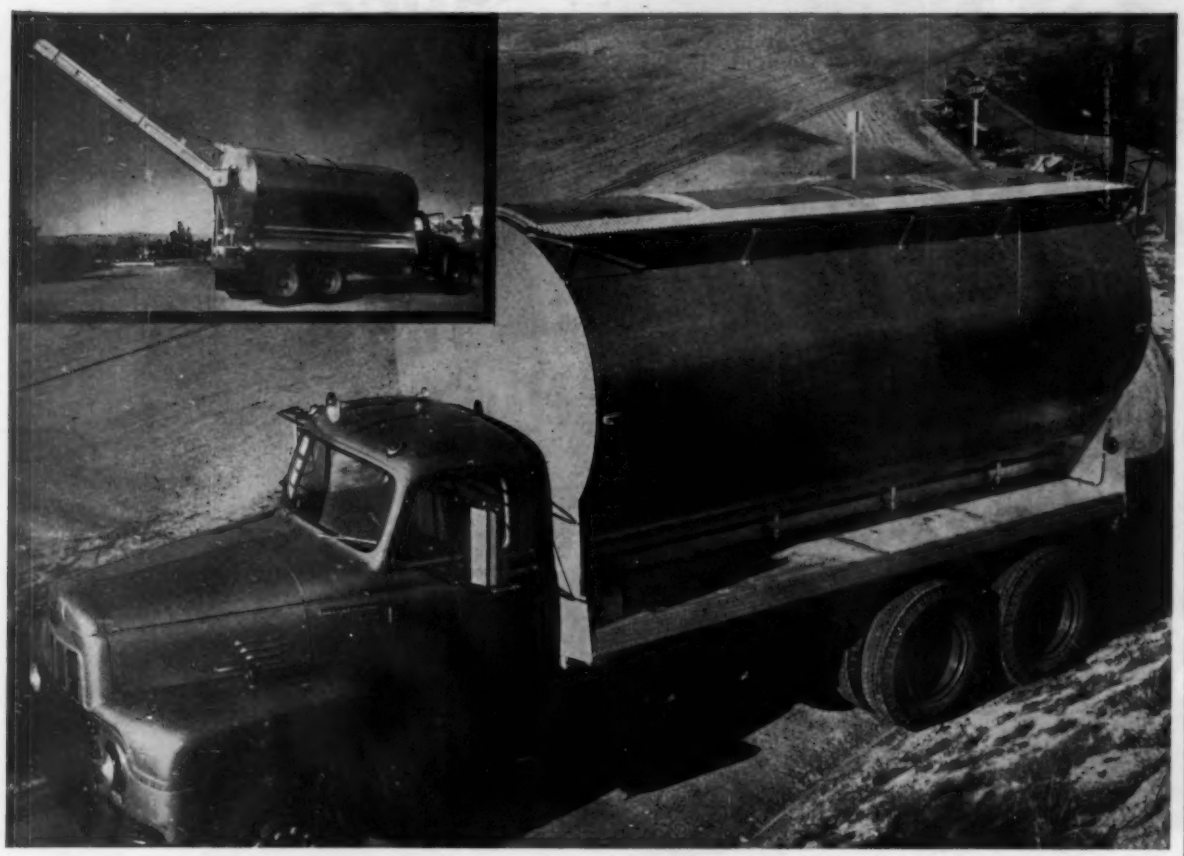
British workers (Reading, 1956) have shown that quite small doses of estradiol monobenzoate (12½ mg./cow and 25 mg./cow) consistently increased both fat and solids-not-fat percentages in milk, with no change in milk yields.

It is quite possible that the difference between most of the observed lack of response of diethylstilbestrol on milk production and the increase reported by Kansas may be due to differences in plant estrogenic content of the diet. Many reports exist in the literature to show that feed ingredients, silages and hays commonly fed to cattle possess considerable estrogenic activity, although their influence is questioned by many (New Zealand, 1955; Purdue, 1956; Alabama, 1958, etc.).

Iowa (Reuber, 1958) recently divulged the results of an experiment in which yearling beef heifers, beef heifer calves and beef bull calves were fed stilbestrol to determine the effect on the reproductive organs. Three groups of six yearling heifers were fed 0, 10 and 20 mg. stilbestrol per day per animal in a fattening ration. Certain animals were slaughtered while others were placed with a virile bull. The stilbestrol had no effects on the estrous cycles or on conception.

Three groups of heifer calves were fed 0, 5 and 10 mg. stilbestrol per day in a growing-fattening ration. Here the addition of stilbestrol appeared to hasten and accentuate puberty but with no other deleterious side effects. When three groups of bull calves were fed and managed similarly, no effects were observed due to estrogen feeding on feedlot behavior, testicular size, or in semen quality.

Colorado (1957) fed stilbestrol to replacement beef heifers and increased their gain 54% over the control lot and reduced their supplemental feed cost 30% in the first year of a proposed three-year experiment. No recommendation for feeding stilbestrol is at present being made by this university until the results of the entire experiment are available. However, Dr. Matsushima of Nebras-



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VISITORS FROM BELGIUM—Touring the U.S. to make arrangements for a new electronic feed mill and to visit with feed nutritionists are Karel Hens, president, and Frans Van Dooren, general manager, N. V. Hens Voeders, Antwerp, Belgium. They are shown during a visit to the Chicago offices of Feedstuffs, accompanied by E. F. Dickey, president, Honeggers' & Co., Fairbury, Ill. Left to right are Mr. Hens, Mr. Van Dooren and Mr. Dickey. N. V. Hens Voeders now operates one electronic feed mill in Antwerp, two mills in France, one of which is electronic, and one in Spain. The planned new mill, which will be equipped by Sprout, Waldron & Co., Inc., will be located in Belgium. Mr. Hens and Mr. Van Dooren have visited the plants of Staley Milling Co., St. Louis, and the Honeggers' installations at Fairbury. They plan to visit other cities across the nation.

ka (1958) states that responses of replacement heifers were inconsistent in the Colorado experiments, since in the first trial the heifers gained considerably more than the control group and that in the second one the results were reversed.

In Dr. Matsushima's opinion, more information is needed, therefore, on levels of feeding or implanting stilbestrol, proper age to feed or implant and types of rations before safe recommendations can be made with respect to stilbestrol implantation or feeding for replacement heifers. I agree with his opinion, not only for beef cattle, but for dairy cattle also.

Even though such use is forbidden by the Food & Drug Administration, both beef cattle and dairy cattle farmers may inadvertently feed stilbestrol at times to breeding or replacement cattle. They are therefore anxious to know about results of such mistakes. They apparently have little to worry about!

Pamco Appoints New Sales Supervisor

OSKALOOSA, IOWA—Productive Acres Manufacturing Co., Oskaloosa, has announced the appointment of D. E. McCraw, Jr., as sales supervisor for the eastern U.S. and Canada (Ontario).

D. E. McCraw, Jr.

Pamco, Inc., the trade mark name, manufactures hydraulic driven, bulk feed handling equipment.

Installation and distribution points are located throughout the U.S. and Canada.

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- Completely hydraulic driven mixer
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- More positive trouble-free operation
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SELLIN' SAM — **By Jim Zilverberg**

"I don't care how good your feed is—you can't list your customers as dependents!"

Management School Is Planned for Nov. 1-6

DECATUR, GA. — The ninth week of the Executive Development in Management School, sponsored by the Southeastern Poultry & Egg Assn., has been scheduled for Nov. 1-6.

J. M. Tankersley, program chairman, in reporting the agenda stated that, "This five-day workshop will provide authoritative reference tools that the managers of small companies can use to check his performance against the tested techniques of good management used by the 11 contributing executives and specialists in solving special problems of small business."

The instructors employ the case history method of teaching and often the participants provide their company's case, thus benefiting from the group's discussion, according to Mr. Tankersley. The participants are placed into groups of four men each for the study periods.

Among the subjects to be discussed are: protecting profits, sources and means of new capital, cost accounting systems, employee attitudes and motivations and interviewing as a tool of management.

The school is sponsored in cooperation with the University of Georgia, school of business and poultry division. It is held in the Center for Continuing Education located on the campus in Athens, Ga. For additional information and reservations to attend, write Harold E. Ford, Southeastern Poultry & Egg Assn., Decatur, Ga.

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—says CY HENNES,
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Ten years ago, Mr. Hennes founded his business on a vacant lot and a desire to help farmers get better results from their livestock and poultry. The building that he erected and everything that went into it were planned to carry out his aim.

Today, Cy Hennes' Purina Service Center is one of the busiest places in town. Farmers in the New Prague area bring their grain to the mill to be processed into Check-R-Mixed rations. Hennes portables move out to grind and mix on the farm. Scores of farmers look to Mr. Hennes or his trained staff for help on feeding and management problems. Hundreds attend his annual meetings, which are both social and educational.

Hennes Feed Mill, with programs developed by Purina Research, has been instrumental in raising farm income in the New Prague area ... and the Service Center's business is nearly fifteen times as great as it was during the first complete year.

Hennes Feed Mill offers Check-R-Mix Service in two ways. The photo at the left shows Farmer Joe Shambour unloading grain to be Check-R-Mixed at the stationary mill. At the right is one of two portable mills that serve farm folks in the area.

Jerome Koenig watches Mr. Hennes spin the Check-R-Mixer dial to get a scientific formula for home-grown grains mixed with Purina Concentrates. Mr. Koenig feeds hogs, cows and chickens.

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Good and Bad Cows

A dairyman can get more than twice as much money out of a good cow as he can from a poor one.

According to a study by Prof. C. A. Bratton, State College of Agriculture, Cornell University, the income one can expect from a dairy cow depends more on the cow's quality than on anything else. A top quality cow will produce more than 12,000 lb. milk a year. Milk sales from such a cow will average more than $600 a year.

Records from 559 New York dairy farms showed a difference of $300 a year between the milk sales of the best cows and those of the poorest. The average was $440 a cow, while the poorest produced $293 in milk sales.

Labor income—the return to the farmer for his labor and management—is also more than twice as great for the good-cow owner as for the poor-cow owner. Labor income per cow ranged from $65 to $157. Milk production ranged from under 7,000 lb. a cow to more than 12,000, with the average at 9,400 lb.

"What you can expect from a cow will depend on how good a producer she is," Prof. Bratton concludes. "If the cow is a 9,400-pounder—average for this study—and prices stay about the same as in 1958, you might expect milk sales per cow of about $440, and an operator's labor income of about $1.25 cwt. milk sold, $115 per cow, or for an average sized herd, $3,800 per operator."

◆

Porch vs. Range

Turkey toms raised on porches may have more foot and hock trouble than those raised on range.

In studies at the University of Massachusetts, 32.2% of the birds raised on porches and 6.4% of those raised on range had foot and hock trouble. It may be advisable, therefore for growers, especially those with heavier type birds, to range the toms and keep only the hens on porches. An alternative would be to provide resting stations on the porches, such as the placing of wide boards around the feeders and waterers and at other points, so the toms can spend part of their time off the slats.

◆

Lagoons for Manure

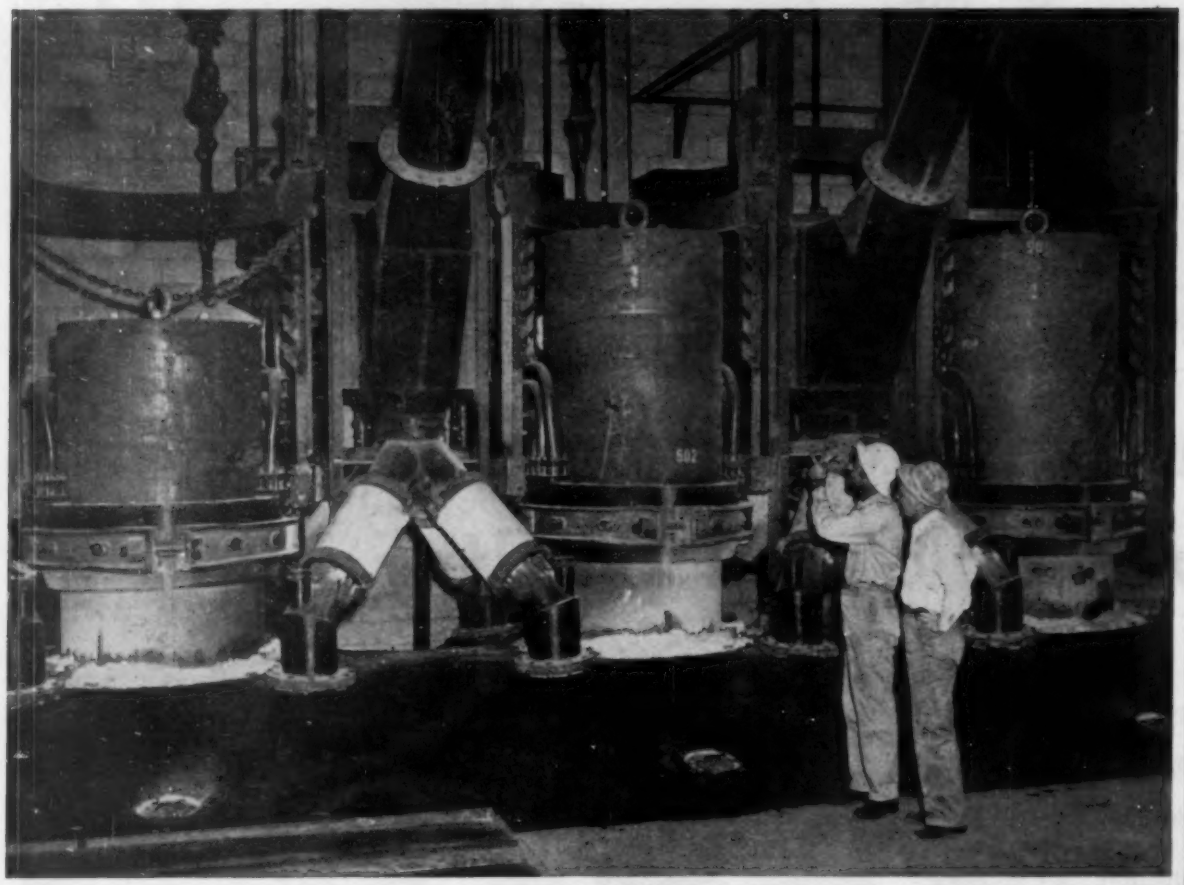
Swine production may soon reach the stage in which many hog houses will have a sewage disposal system. Prof. R. L. Ricketts, extension agricultural engineer at the University of Missouri, says it appears that lagoons may play a part in this development.

Although the lagoon method of handling manure still is in the experimental stage, it seems to offer some advantages.

These lagoons are pond-like structures about 3 ft. deep. Liquids and solids from confinement feeding floors are washed or pushed into the lagoons. Water is added so that all solids in the lagoon are covered. Then a combination of plant growth and bacterial action tends to break down and digest the manure.

A lagoon is comparatively easy to build. Only one concrete retaining wall adjacent to the feeding floor is

(Turn to page 44)



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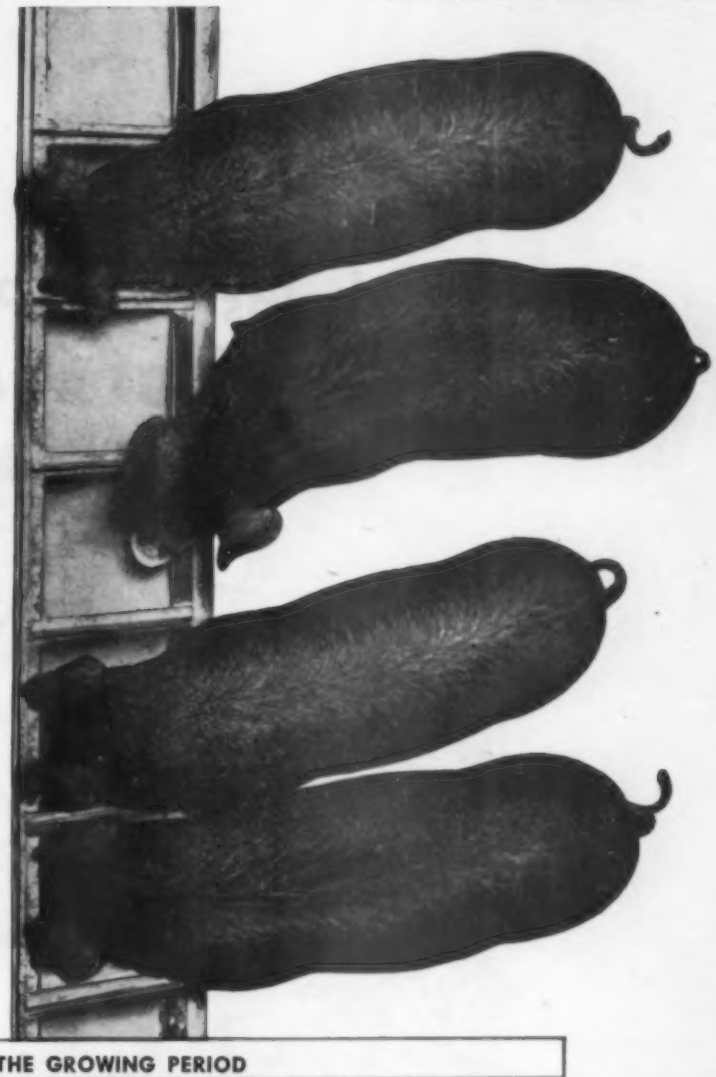

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Ohio (Drylot)	8	70	35	35	132	141	1.37	1.51	3.22	3.01	10.2	6.5
Ohio (Pasture)	20	56	38	38	118	123	1.42	1.51	2.81	2.79	6.3	0.7
Nebraska (Drylot)	19	76	38	38	135	138	1.27	1.37	3.53	3.26	7.9	7.6
Nebraska (Pasture)	19	76	37	39	146	160	1.42	1.59	2.99	2.90	12.0	3.0
Purdue (Drylot)	11	42	37	37	88	94	1.22	1.36	3.40	3.22	11.5	5.3
Purdue (Concrete & Soil)	10	49	32	32	84	84	1.05	1.06	3.03	2.95	1.0	2.6
Purdue (Concrete)*	10	49	32	32	93	99	1.24	1.35	2.86	2.85	8.9	0.3
N. Carolina (Concrete)	43	56	38	32	107	95	1.23	1.12	3.51	3.28	−8.9	6.6
N. Carolina (Pasture)	44	56	36	32	100	94	1.10	1.10	3.28	3.05	0.0	7.0
S. Dakota	24	39	45	45	101	106	1.43	1.61	2.99	2.74	12.6	8.4
Uni. of Alberta*	8	31	14	14	38	42	.79	.91	2.05	1.91	15.2	6.8
Uni. of Alberta	8	31	14	14	38	44	.77	.96	2.23	1.95	24.7	12.6
Michigan State	18	89	31	31	121	121	1.36	1.41	3.20	3.00	3.7	6.2
										Average of tests:	8.1	5.7

*Pigs in these lots were wormed once with purge-type wormer.

HERE ARE EXCERPTS FROM SUMMARIES MADE BY EXPERIMENTERS AT STATE COLLEGES ABOUT THE EFFECTIVENESS OF HYGROMIX

Purdue . . . Hygromycin effectively controlled roundworms, nodular worms, and whipworms, as shown by ova counts taken and by worm counts obtained at slaughter. *Purdue Swine Day—Mimeo A. S. 242, August, 1958*

Nebraska . . . Hygromycin B is highly effective and more nearly meets the requirements of an ideal wormer than any of the former compounds. *"Worm Eggs Cost You Money"—University of Nebraska, E. C. 1902*

Ohio State . . . The reduction in the number of ascaris (roundworm) and nodular-worm ova in the treated groups would indicate that this feed additive (Hygromix) is very effective in the elimination of these internal parasites of swine. *Swine Day, 1957—Animal Science Mimeo 106*

Wisconsin . . . Hygromycin hits harder than other drugs. The new drug gets whipworms, which no other drug has been able to touch. It acts partly by blocking reproduction of the parasites . . . an ideal way to stop the worms before they do the damage. *Press Release—University of Wisconsin, December 16, 1957*

South Dakota . . . Hygromycin controlled roundworms effectively, as there were no roundworm ova present in the feces of any pigs receiving either hygromycin or the combination of hygromycin and chlorotetracycline. *Swine Field Day—September 11, 1958*

Missouri . . . Hygromycin was effective in reducing the roundworm egg count. *"The value of various antibiotics for growing fattening swine" Swine Day—September 5, 1958*

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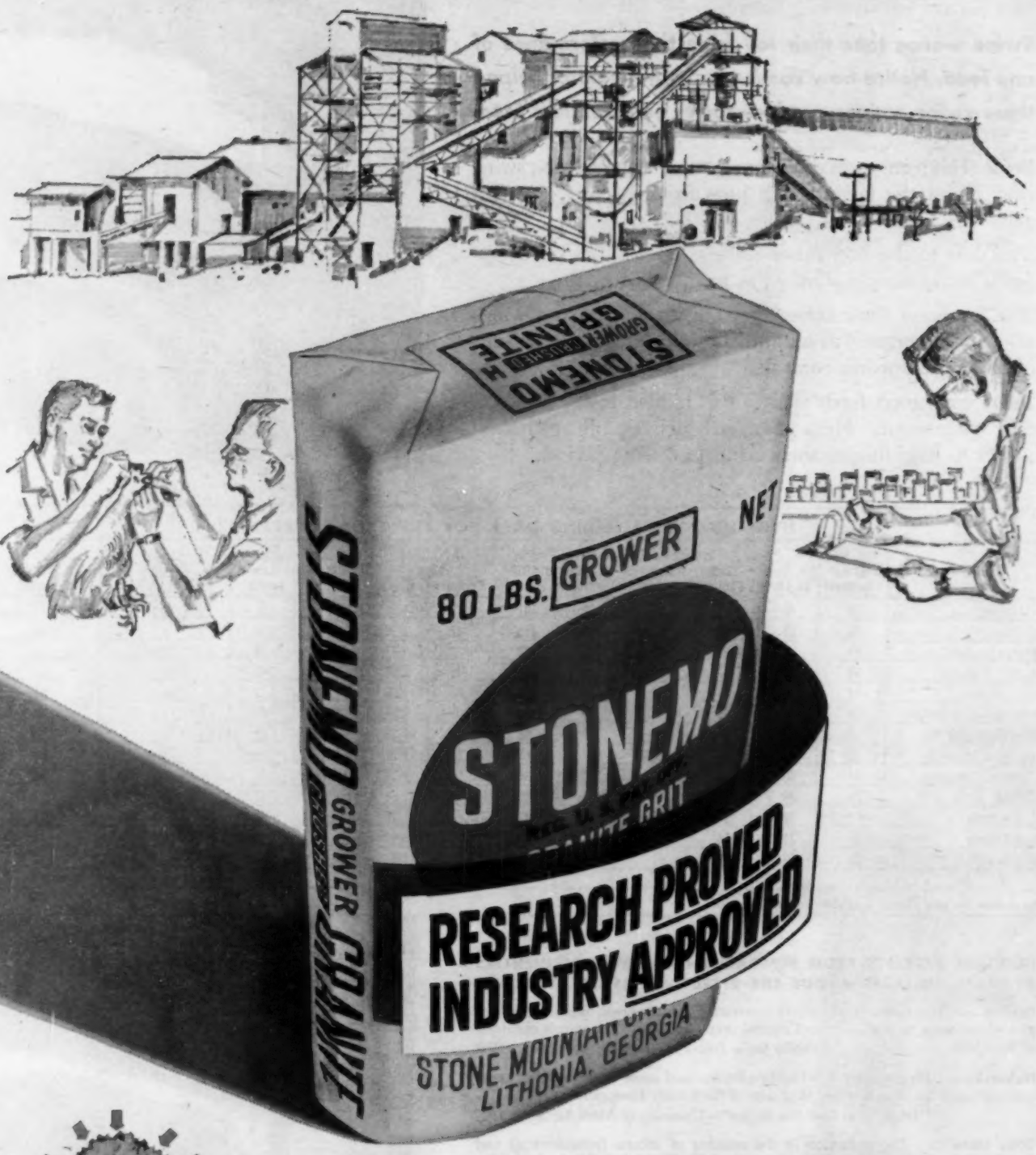

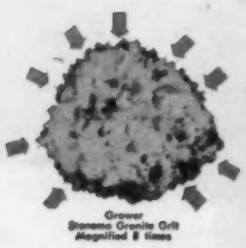

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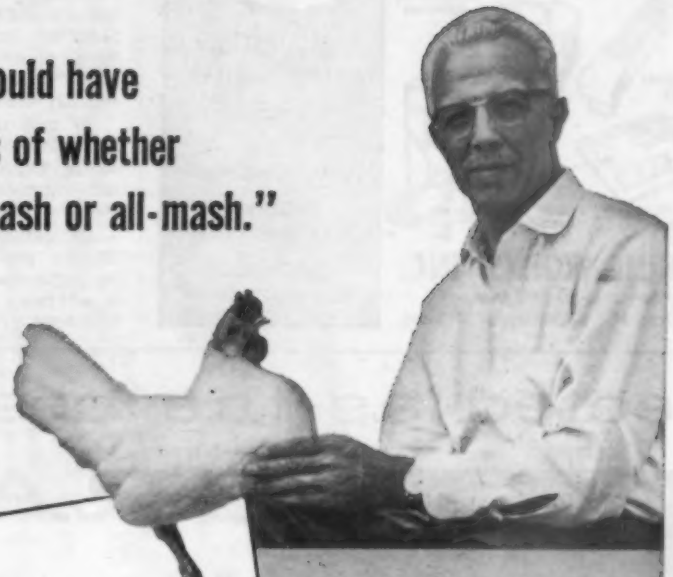
says
Monroe C. Babcock
one of the nation's leading poultry breeders



Monroe C. Babcock, above, holding a Babcock Bessie, speaks with authority gained from many years of practical knowledge in the feeding of Stonemo Granite Grit.

Below, a pen of 50 Babcock Research birds, part of the 62,000 wing-banded females in his breeding program.

Babcock Poultry Farm, Inc.
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February 10, 1959

Mr. Charles L. Davidson, Sr., President
Stone Mountain Grit Company, Inc.
Lithonia, Georgia

Hello Charlie:

Chickens of all ages should have insoluble grit regardless of whether they are on grain and mash or all-mash. I find some poultrymen think that birds on all-mash don't need grit. In my opinion all-mash isn't ground as fine as a chicken wants it to be for best digestion.

I like insoluble grit because it stays in the bird's gizzard longer and does the real work of grinding. Chickens of all ages just love to eat something hard. Insoluble grit satisfies this desire upon the part of the bird.

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We have used your Stonemo grit for many years. Our Babcock Leghorns like it and eat it with relish.

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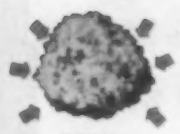

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needed. All other construction is of dirt.

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◆

Looking Ahead

It won't be long until the time when winter takes the pressure off of farm work, and Dr. J. R. Pickard, University of Illinois extension veterinarian, suggests that now's a good time for farmers to start thinking about those "extra" livestock care jobs that don't get done in growing and harvesting weather.

He says the slack farm season is often the best time for dehorning cattle, trimming the feet of cattle, treating animals for lice and removing tusks from boars.

An annual livestock health checkup can pay dividends, especially in finding a disease such as mastitis before it has a chance to spread through the herd. This inspection may also show nutritional or breeding problems that could cut profits.

◆

Broiler Seasons

Growers will find it to their advantage to keep marketing seasons in mind when making decisions on how much floor space should be allotted broilers.

Dr. A. T. Ringrose, poultry specialist at Virginia Polytechnic Institute, says the market normally calls for larger and fewer broilers in fall and winter and for smaller and more broilers in spring and summer. He notes that the market demand for broilers is only 60% of normal for the months of November and December while it is about 40% above normal from April through September.

Also, Dr. Ringrose calls attention to recommendations for broiler marketings to be cut back for November and December this year. In view of the overproduction of broilers during the fall of 1958 and the first half of 1959, with subsequent low prices, he says broiler placements for marketing during those two months must be reduced to get anywhere near a satisfactory price.

Charge Seed Crushers With Fixing Prices

STATESBORO, GA. — Rep. Prince Preston of Georgia has charged that large seed crushers have conspired to fix cottonseed prices, and he urged U.S. Attorney General William Rogers to investigate for possible antitrust law violations.

In a letter to the Attorney General, Rep. Preston said, "I would welcome an opportunity to make evidence known" to Justice Department antitrust division investigators.

In urging that an investigation be made by the antitrust division, Rep. Preston said such a probe might determine "whether an antitrust suit should be brought against seed crushers in an effort to create a realistic and competitive market for cottonseed."

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Star-Kist Foods, Inc., Adds New Fish Solubles Plant to Cannery Operation

TERMINAL ISLAND, CAL.—Construction of a new fish solubles plant, said to be the largest in the U.S., was completed recently on Terminal Island by Star-Kist Foods, Inc. Company officials said the addition of production facilities for fish solubles was "a logical step in complete utilization of all raw materials available."

The solubles production unit is adjacent to the Terminal Island cannery where Star-Kist Tuna is packed. Other Star-Kist plants which process sardines in season are nearby also, so that raw materials for fortified and condensed fish solubles reach the processing plant "in a rapid and efficient manner," Star-Kist officials noted.

Star-Kist learned through research that an important step in preserving the high nutritive values in fish solubles is immediate acidification of fish water upon arrival from the cannery to a pH of 4.5, and this finding was incorporated into the engineering of the new plant.

Another factor which Star-Kist considers important in the preservation of the original nutritive values of fish is the processing of fish viscera as rapidly as possible. It was pointed out that the company's "completely integrated operation makes it possible to move the viscera, including fish livers, from the butchering lines in the cannery to the solubles plant in the shortest possible time."

When viscera arrives at the solubles plant, it is ground immediately and pumped into digesting tanks, where natural enzymes liquefy the material. The liquid viscera is pumped through a fine screen into blending tanks containing fish water, which contains amino acids and vitamins. Lumps, bones, fish hooks or other non-fluid matters are removed in the screening process.

NEW FISH SOLUBLES PLANT—This is an over-all view of the new Terminal Island, Cal., fish solubles processing plant recently completed by Star-Kist Foods. Shown in the picture are evaporators, digesting tanks and heat exchangers.

The fluid fish viscera is mixed in proper proportions with the fish water in a blending tank. And before it is moved on to evaporators, the products are screened again.

Star-Kist officials said "the emphasis is on the combination of low temperature, high vacuum and rapid flow" in the condensing process for these reasons: "Low temperature and high vacuum avoid destruction of vitamins and burning of proteins, and rapid flow prevents any possibility of the product 'baking on' which might cause shut-downs and interruptions in the process of continuous concentration."

The fortified and condensed product is ready for storage after passing through evaporators. It is tested for fluidity, color, odor, total solids, pH, protein and salt. When a storage tank of the product meets standard specifications, the finished solubles are transferred to 160,000-gal. shipping tanks. Records are kept of each batch produced and shipped so that a complete history of a batch can be traced.

Iowa Poultry Assn. to Open Headquarters

AMES, IOWA—Formal opening of the new headquarters of the Iowa Poultry Assn. at Ames, has been set for Nov. 5, according to LeRoy Kruskop, executive secretary. A modern brick building is being constructed in Ames for the state headquarters.

for consistent deep yellow egg yolk color throughout the year

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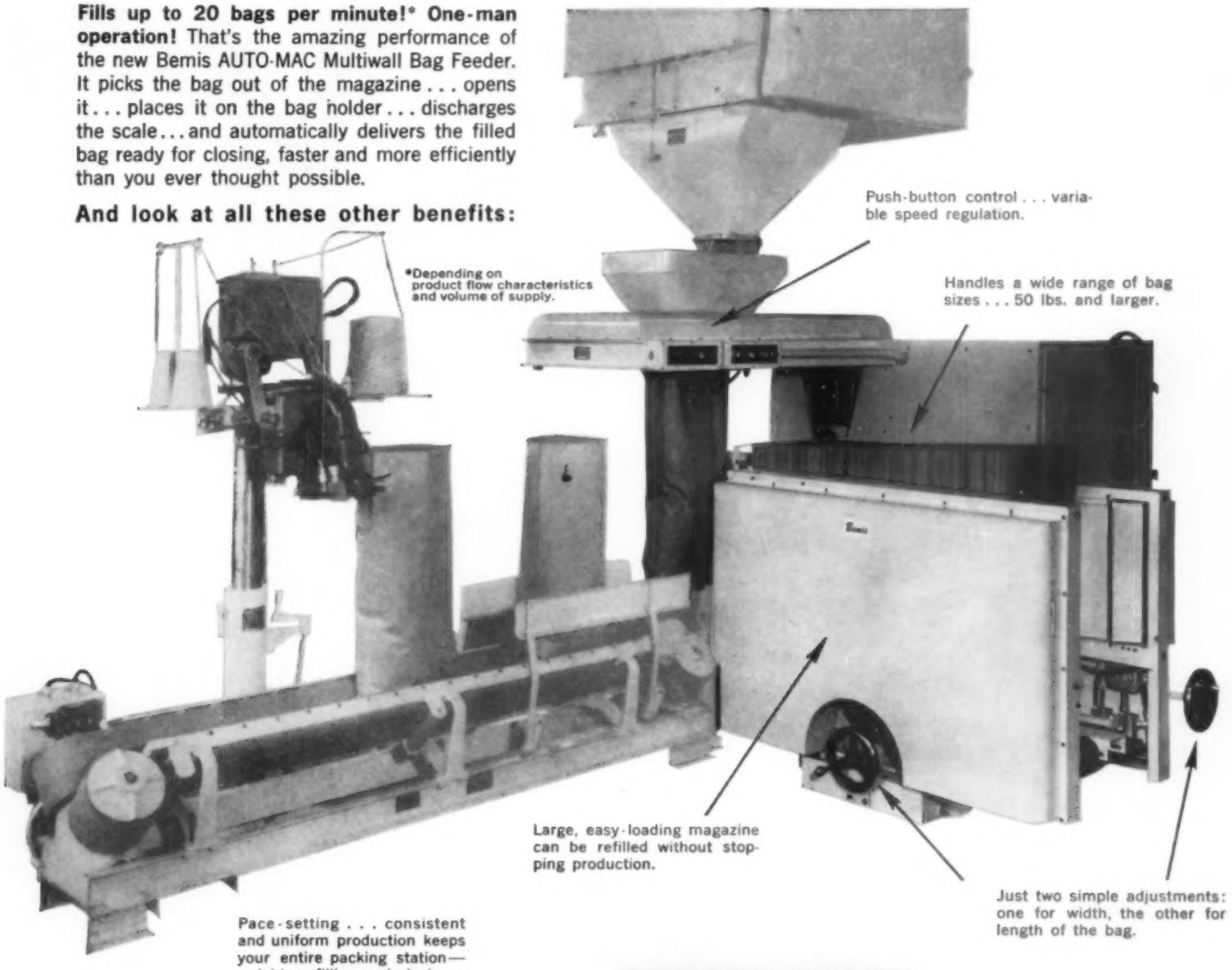
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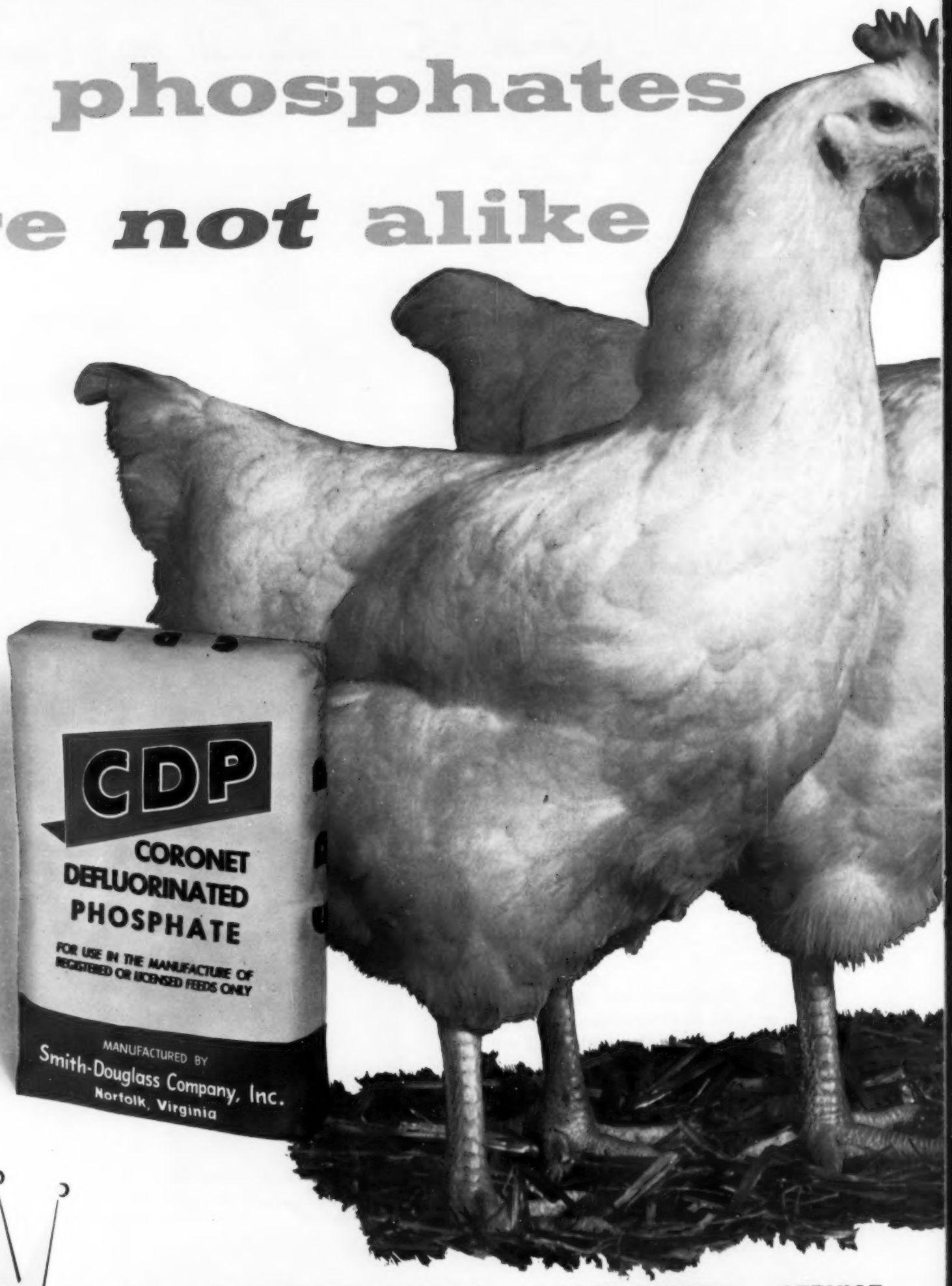
All defluorinated phosphates are *not* alike



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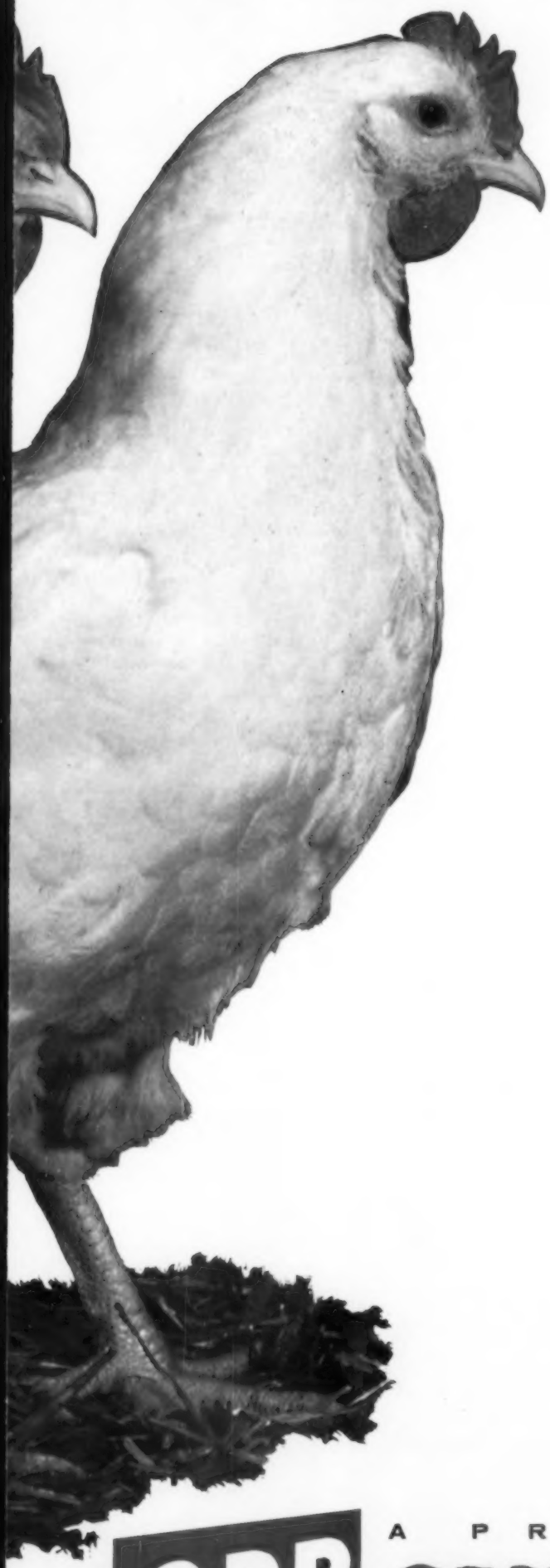

High phosphorus availability results with CORONET DEFLUORINATED PHOSPHATE have been confirmed in a variety of feeding tests conducted by state agricultural experiment stations and independent research laboratories not affiliated with Coronet.

Chemically, CDP is an ortho phosphate, free of pyro and meta phosphates. It is predominantly in the form of alpha tricalcium phosphate; non-hygroscopic and non-acidic, but readily soluble in dilute acid solutions.

Nutritionally, CDP is a tried and tested source of phosphorus, palatable to livestock even in free-choice feeding. ALL of the phosphorus in CDP has demonstrated total biological availability to both plant (rumen bacterial micro-organisms) and animal life. Nutritional evidence establishing CDP as the BEST defluorinated phosphate is contained in the following literature:

1. "The Availability of Phosphorus from Different Sources of Poults Fed Purified Diets." Poultry Science, Volume XXXIII, Number 5, September, 1954.
2. "A Comparison of the Availability, to the Young Growing Chicken, of the Phosphorus in Defluorinated Phosphate and Analytical Reagent Grade Dicalcium Phosphate," by Lime Crest Research Laboratory, October, 1954.
3. "The Availability of Phosphorus from Different Sources for Poults Fed Practical-Type Diets." Poultry Science, Volume XXXIV, Number 5, September, 1955.
4. "Phosphorus Availabilities as Determined by New Feeding Experiment," by Lime Crest Research Laboratory, November, 1955.
5. "Phosphorus Availability Assays by the University of Illinois Method," (as presented by Dr. H. M. Scott) conducted by the Laboratory of Vitamin Technology, Inc., September, 1956.

Coronet Defluorinated Phosphate is a result of creative development, quality production and continuing research. No phosphorus feed products are subjected to more meticulous quality control than those produced by SMITH-DOUGLASS.

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PRODUCT	Solubility in 0.4% HCl	Solubility in 2% citric acid	Solubility in neutral ammonium citrate	Average total solubility
CDP	100.00%	87.14%	86.16%	91.10%
Product A	96.48%	51.19%	19.41%	55.69%
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FEED CONTROL COMMENT

By BRUCE POUNDSTONE
Secretary, Association of American Feed Control Officials
Kentucky Agricultural Experiment Station, Lexington

Antibiotic Guarantees

Questions are frequently raised about claims for growth stimulation when antibiotic feed supplements are used in feeds. Dr. Forrest W. Quackenbush points out that such claims as a part of the labeling of feeds began with the addition of drugs to feeds. The objective was to state the purpose of the drug which was added. This was usually for the prevention or treatment of a disease. In some cases the drug also increased growth or feed efficiency, and a statement to this effect was permitted, in addition to the disease prevention or treatment item, in the purpose or claims portion of the label.

A different situation is presented in feeds containing an antibiotic feed supplement at levels below 50 gm. per ton. Since the addition of an antibiotic feed supplement at such nontherapeutic levels does not produce a medicated feed, guarantees for the level of antibiotics are not permitted.

There would seem to be no reason for treating such feeds differently than any other non-medicated feed. An antibiotic feed supplement is similar to a vitamin supplement or a trace mineral supplement, any of which can be shown to produce growth stimulation under certain circumstances.

This is the thinking behind the distinction between "drug levels" of antibiotics and growth stimulation levels. No claims for growth stimulation may be made if the level falls below 50 gm. per ton.

★

Santoquin, an Ingredient?

The subject of this column on Sept. 19 considered names of drug ingredients and feed additives. An inquirer asks why "Santoquin" is not considered the common or usual name of this product. He further asks why it is necessary to use the long chemical name, "1,2-Dihydro-6-ethoxy-2,2,4-trimethylquinoline."

The answer to this is that Santoquin is not the common or usual name. This is a registered trademark name and the property of Monsanto Chemical Co. As such it cannot be considered the common or usual name. It therefore is necessary to refer to the product in an ingredient list by the only other name by which it is known.

(Editor's note: Monsanto has since coined a new generic name, ethoxyquin, to identify this product.)

The questioner further asks what can be done about getting a shorter name. The answer to this question was given by John L. Harvey of the Food and Drug Administration, and reviewed in the article referred to.

The next question is how do you go about getting a new name? It is at this point that industry, suppliers, manufacturers and everyone concerned should get together and decide on a new name that is short and clear, and that can quickly be recognized as applying to what is now known as 1,2-Dihydro-6-ethoxy-2,2,4-trimethylquinoline. Once such a name is developed and agreed upon it presumably could be used along with 1,2-Dihydro-6-ethoxy-2,2,4- trimethylquinoline for an unspecified period, after which time this "jawbreaker" would be dropped and the new name used in its place.

★

Corn Cob Bran

A manufacturer proposes to label a product as corn cob bran. I. Levin, state chemist of the state of Iowa, and investigator for corn products of the Association of American Feed Control Officials, comments that if fractions of the corn cob are separated they should be designated in accord with the proper name of the product. No one refers to any part of the corn cob as bran. The various fractions recognized are: Hard woody ring, vascular ring or sclerified ring fraction, pith and beeswings or outer glume.

In most instances, however, a manufacturer will be dealing with ground corn cobs, in which instance the product should be named according to definition 61, page 29 of the 1959 official publication which reads:

Ground Corn Cob is the product resulting from grinding the entire cob. If it is designated as "Fine Ground," the entire grind must pass through a number ten sieve and thirty-three per cent of the total material must pass through a number twenty sieve. If it is designated "Coarse Ground," the entire grind must pass through a number four sieve and fifty per cent must pass through a number ten sieve. If it is designated as "Dehydrated," it must contain not more than 10 per cent moisture. (Adopted 1958.)

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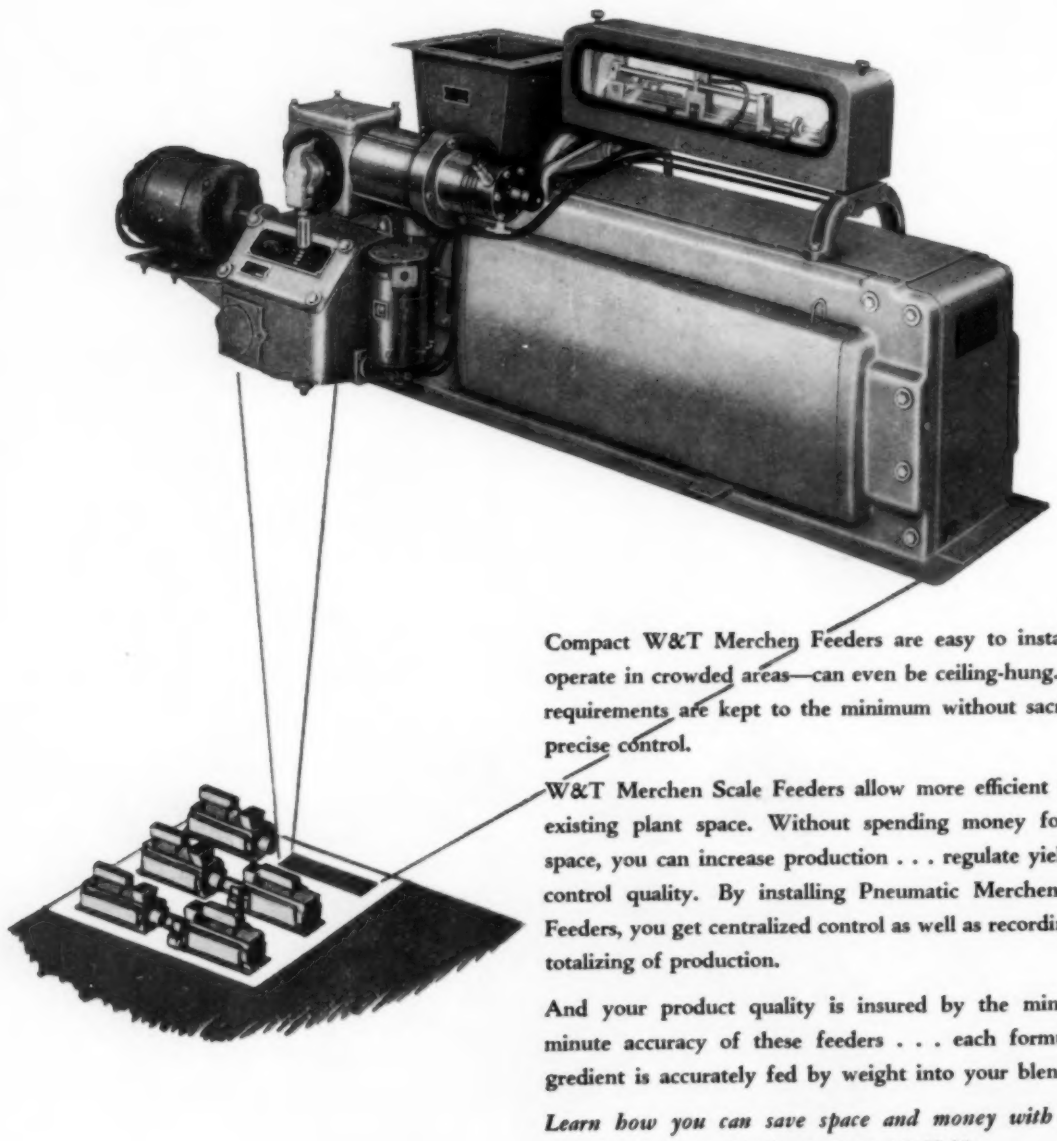

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Arkansas Dealer Sees Benefits In Making Own Feed, Builds Mill

By Jess F. Blair
Feedstuffs Special Writer

The new feed mill recently completed by the Morrilton (Ark.) Feed Mills, Inc., was built for several reasons.

"The need for making our own feed was perhaps the greatest," said Houston Mallett, president and manager of the firm. "All the railroads run north and south here, and I found I could ship corn from Kansas City cheaper than I could send a truck for a load of complete feed."

Mr. Mallett also saw an opportunity in custom grinding and mixing, in promoting a swine program, and in being able to change the feed formulas rapidly as needed.

He has been feeding around 225,000 broilers on contract, and figures he can save a good deal on this alone.

"When broiler prices dropped," he said, "it meant we had to streamline operations to stay in business."

In building his new mill, Mr. Mallett added a new 30x30 ft. room to house the equipment. It also has a small basement in which the hammermill is located. He added 10,000 bu. of overhead storage, which is constructed of lumber. Other new equipment includes Prater Twin Spiral mixers, a 100-hp. Prater hammermill, a Seco molasses mixer, a Blue Streak weigh buggy with 1,000-lb. capacity, and several pieces of smaller equipment.

Corn Handling System

When corn is brought in by rail, the car is stopped just outside the mill, and corn is elevated in a bucket elevator to the overhead bins. From there it is sent through the grinder in the basement, and then up again to other storage units or it can be sent to the mixers.

Bulk concentrates are taken to overhead storage, then drop into a weigh buggy on the main floor. A worker then dumps the concentrates into the mixers.

After mixing, the feed can be lifted by a bucket elevator to the storage units, or it can be sent directly into a waiting bulk truck.

"Only one hitch to this operation bothers me," Mr. Mallett said, "and that is having to dump the concentrates into the mixers. Later on I can eliminate one worker at mixing time by weighing and moving concentrates directly into the mixers."

Just a few feet away and on the other side of the room is the molasses unit. Although not used in broiler feed, Mr. Mallett will make good use of it in the dairy business, which he is now promoting.

While broilers are his main business, he does not want to depend on this altogether. That is why he is promoting dairy cattle and hogs. At present the hogs are increasing, but not too rapidly. His largest grower has 125 head on feed. This is mostly a cash business, though he occasionally does some financing on feed.

'Little' Farmer Business

"A man is foolish to depend on broilers altogether," he said. "We are not overlooking the little farmer, because there are a lot of them left. They do a lot of custom grinding and mixing with us. And they also buy other things, such as poultry and livestock supplies, fertilizers, insecticides and sanitation products."

Mr. Mallett believes that every customer should feel welcome at the mill. Once a year, in appreciation for their business, he gives a big barbecue or supper and invites them to come free of charge. In addition to the supper, he has a company representative to talk to them on their problems.

"We have several of these big feeds," Mr. Mallett explained. "You can't mix dairymen and broiler growers because they don't have much in common. So we invite the broilermen one time, then the dairy owners, and then the hog raisers. Each program is slanted directly toward the group present."

He tries to increase business each month, but carefully considers what that expansion would require in manpower, equipment and overhead. He now has five employees besides himself. He not only serves as manager, but is the firm's service man. During his nine years in the feed business he has gained a practical knowledge of nearly all phases of feeding, and poultry and livestock problems.

"This is one way of providing a saving," Mr. Mallett said, "and besides I need to get out and talk to people on the farms."

Broiler Contracts

In working with broiler growers, Mr. Mallett tries to get farmers who will handle a minimum of 5,000, and this past summer he had about 25 contract feeders. They sign a contract for one bunch of chickens only. They furnish housing, equipment, litter and utilities, and get a minimum of about 5¢ per bird for raising the broilers.

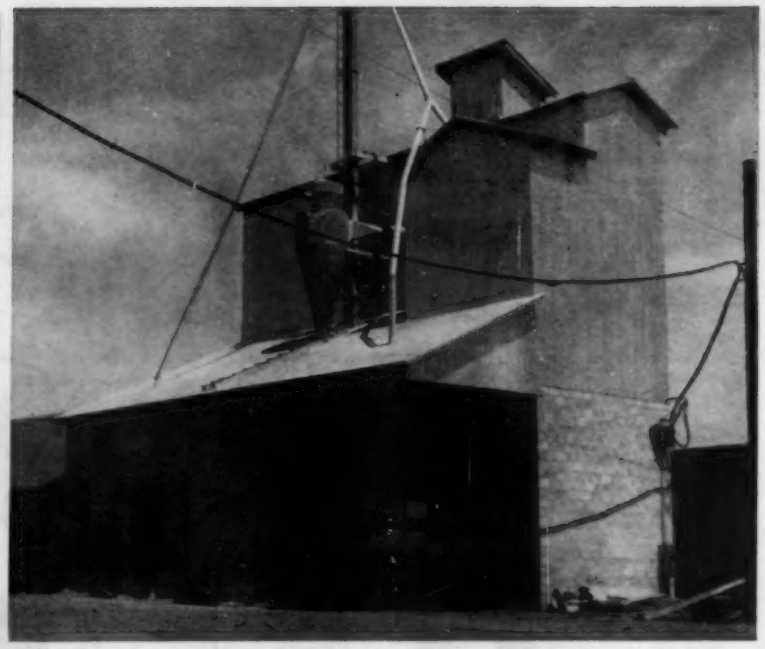
There is a sliding scale, though, which provides as much as 9¢ per bird when they sell for 20¢ per lb. and the grower gets a high feed conversion rate.

"I just don't like a flat guarantee on anything as uncertain as broilers," he stated. "I take a gamble on putting out the chicks, so the farmer must also take the same risk. This way I think we get better results than some other contract feeders. Our best feed conversion was 2.20 lb. of feed for 1 lb. of chicken. That meant some good management on the part of the farmer."

Mr. Mallett is preparing his business so that he can move into or out of particular operations readily. That is the main reason he put in the new mill—to handle any kind of feeding program in volume quantity.

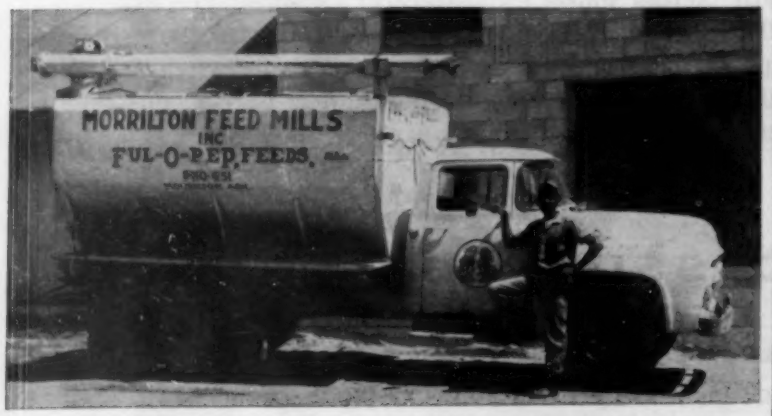
CONTROL BOARD — Houston Mallett, president of the Morrilton (Ark.) Feed Mills, Inc., is shown at the control board of his new mill. All operations are handled at this panel board except the molasses mill, which is operated from another electric switch on the opposite side of the room.

HAMMERMILL—The new mill built by the Morrilton (Ark.) Feed Mills, Inc., has this 100-hp. Prater hammermill installed in a small basement.



NEW MILL—Shown is an outside view of the new mill built by the Morrilton (Ark.) Feed Mills, Inc. A truck is unloading ingredients; however, most feed comes in by rail.

MOLASSES MIXER—Shown trying out a new molasses mixer, part of the equipment installed in the new mill of the Morrilton (Ark.) Feed Mills, Inc., is Houston Mallett (left), president of the firm, and one of his employees.



BULK TRUCK—This bulk truck is used to deliver feed to broiler operators—customers of the Morrilton (Ark.) Feed Mills, Inc. The truck is loaded from an outlet pipe, and can be loaded and unloaded by one man.

MIXERS—These Prater Twin Spiral mixers are part of the equipment installed in the new mill built by the Morrilton (Ark.) Feed Mills, Inc. Houston Mallett, president and manager of the firm, is shown at right.

Purina to Build Bulk Station at Canby, Ore.

CANBY, ORE.—Ralston Purina Co., St. Louis, has obtained a building permit for construction of a bulk loading feed station in Canby. The installation will serve Union Mills, the Purina distributor in the area, which operates two bulk feed delivery trucks.

The structure will consist of a cluster of eight tanks beside a railroad siding, with facilities for loading directly from the tanks by gravity into trucks below. A large bin will be built under the railroad siding tracks, and drop-bottom cars will unload their cargoes directly into this pit. From there feed will be moved into the tanks by an auger-type carrier.

The station was designed and will be built by Larson & Baardson, Inc., Portland, Ore.

Alvin B. Friedrich, proprietor of Union Mills, said the tanks will be about 55 ft. high, and the entire structure will be about 16 x 32 ft.

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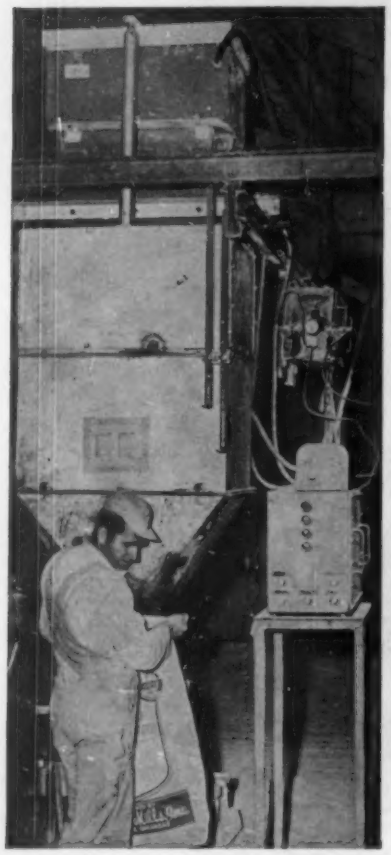

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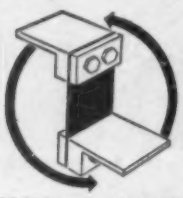

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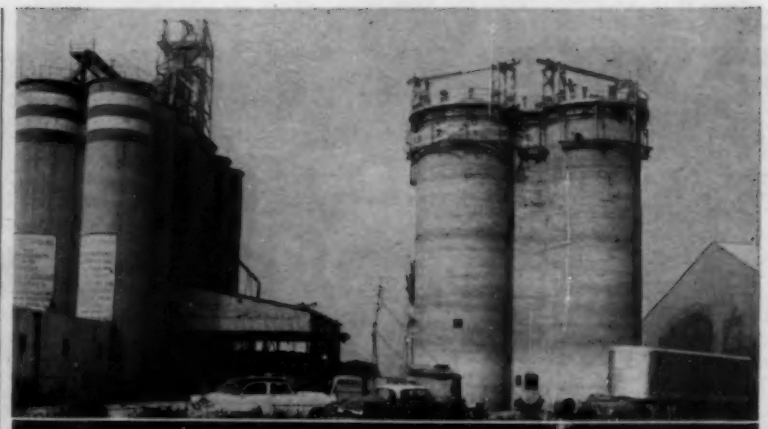

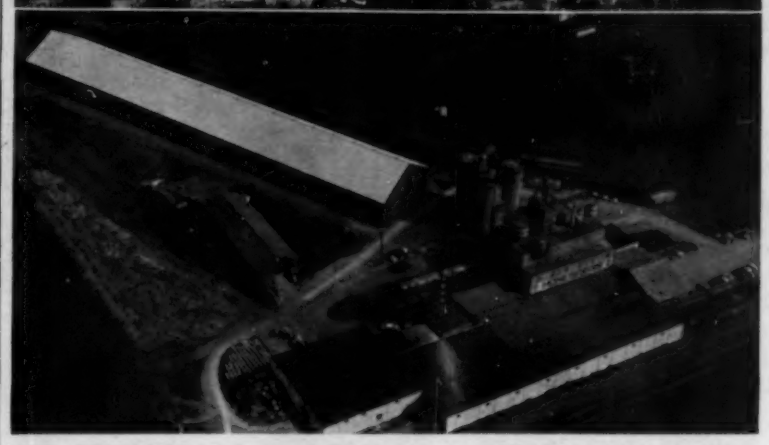

NEW ELEVATOR—A new 125,000-bu. elevator (top picture) being built by Honeggers' & Co., Inc., at the firm's headquarters in Fairbury, Ill., consists of nine bins, and will be 110 ft. high when topped with its headhouse. With overhead and underground conveyors connected to the adjacent feed mill and flat-storage warehouse, the elevator will be used for turning, cleaning, drying, cooling and reloading grain. A new 110-ft. siding with an enclosed railroad scale and dump pit will be located just to the left of the elevator. Between the elevator and flat-storage warehouse, a hydraulic 50-ton truck dumper scale will be installed. The newly-constructed flat-storage grain warehouse, next to the new elevator, is shown in the aerial view (bottom picture) of the Honegger operations at Fairbury. The steel building is 600 ft. long and 100 ft. wide, and is divided into five compartments with a total capacity of 1,625,000 bu.

Renderers' Group Elects New Officers

DENVER, COLO. — Officers and vice presidents were elected at the National Renderers Assn. seventh regional area convention recently.

Officers elected for the coming year include the following: Harold Yaffee, president; R. G. Day, vice president; Omer Dreiling, director-at-large, and Herb Skinner, secretary-treasurer.

State vice presidents elected include: Ed Pevehouse, Arkansas; Larry Baltzer, Iowa; Don Kippes, Kansas; Harold Weiss, Louisiana; Donald Kark, Minnesota; Gene Seiffert, Missouri; C. W. Swingle, Jr., Nebraska; Ray Stip, North Dakota; John Keathley, Oklahoma; William Hall, South Dakota, and F. O. Cantini, Texas.

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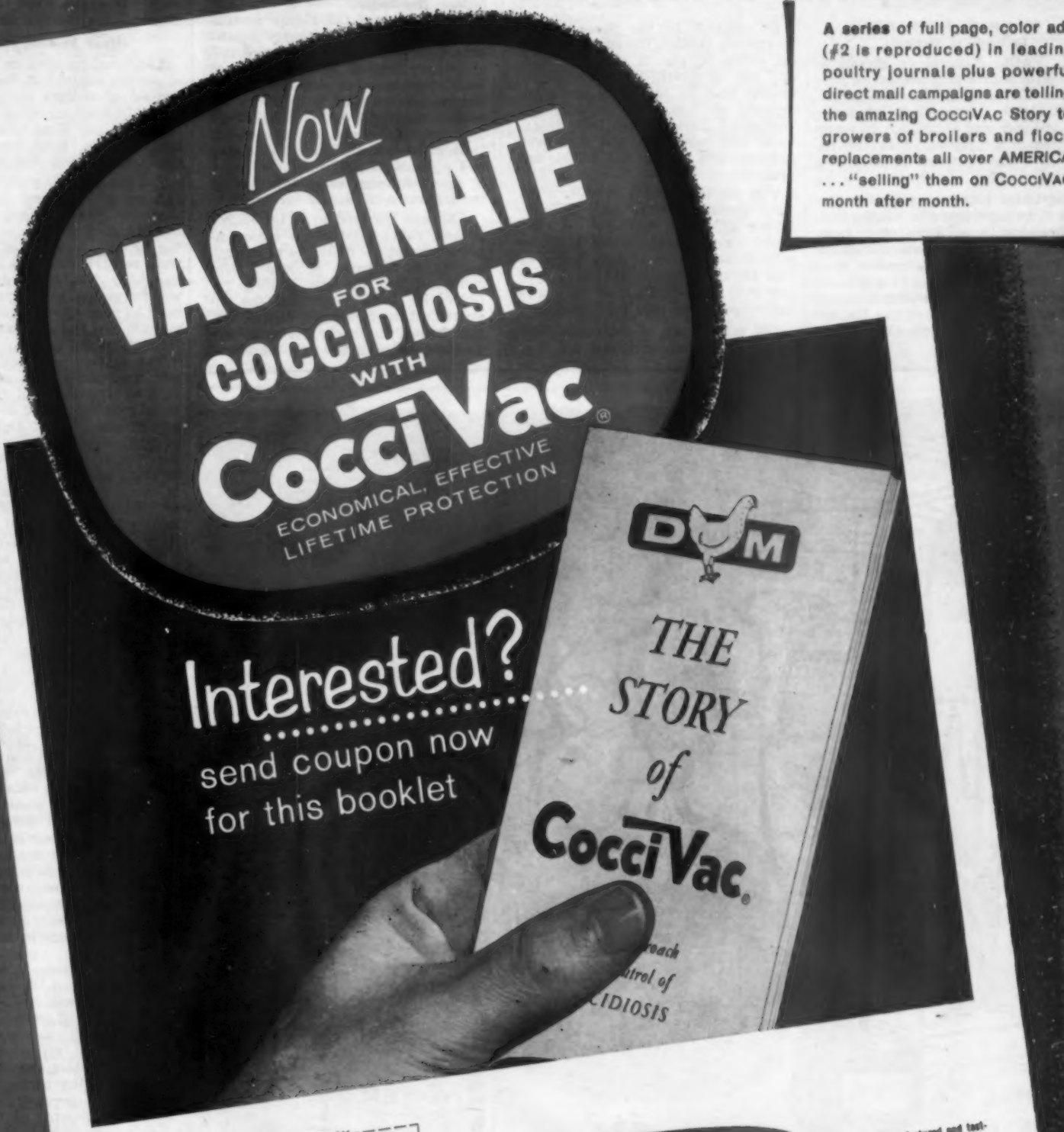

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Research on Protein in Swine Rations Reported at Minnesota

By DR. R. J. MEADE
University of Minnesota

ST. PAUL—Reports on investigations with source and amount of protein in the growing-finishing ration, injectable iron compounds for suckling age pigs and antibiotics in swine nutrition were presented at the recent 37th annual Swine Feeders Day at the Univeristy of Minnesota.

PROTEIN LEVEL STUDIES: Results of an experiment in which growing-finishing pigs were fed corn-soybean oil meal type rations containing 18 or 14% of crude protein from 50 to 100 lb., and 15 and 11% protein, respectively, thereafter were reported by Dr. A. B. Salmela of the University of Minnesota North Central Experiment Station.

In addition to the protein level treatments studied, the effects of adding either 90 gm. of arsanilic acid, 22.7 gm. of 3-nitro-4-hydroxyphenylarsonic acid, or 18 gm. of arsenozobenzene per ton of ration were investigated. Each protein level treatment was replicated, and each was fed with and without the arsenic additives.

Pigs fed the 18-15% of protein rations gained 1.93 lb. daily and required 331 lb. of feed cwt. of gain, while those fed the lower levels of protein had average daily gains of 1.73 lb. and required 344 lb. of feed per cwt. of gain. Both of the above differences were highly significant.

Six pigs, three of each sex, were slaughtered from each test lot. Protein content of the ration had no effect upon yield of the 4 lean cuts of cold carcass; however, the pigs fed the higher protein rations did yield .7% more of the four lean cuts of the off-test liveweight.

The feeding of the higher protein rations did result in a highly significant increase, .39 sq. in., in loin eye area as measured at the 10th rib. Backfat thickness as measured on the carcass was reduced only .05 in. by feeding the higher protein levels during the growing-finishing period. None of the arsenic compounds tested had a significant influence upon rate of gain, efficiency of gain or any of the measures of carcass excellence.

Although the feeding of the higher protein rations did cause some improvement in the measures of carcass quality, as indicated, producers were cautioned that the cost of these rations was greater, and that the improvement in efficiency of feed utilization as well as in carcass excellence was not sufficient to offset the actual additional feed cost per unit of gain.

It was suggested that swine producers should think in terms of a breeding program designed to produce the type of hog that would yield high quality carcasses when full-fed nutritionally adequate rations.

Other Protein Studies

Additional research on the influence of protein content of the ration and method of feeding the protein supplement was reported by Harley Hanke of the West Central Experiment Station. Four lots of 30 pigs each were used in this experiment.

Rations containing either 18, 15 or 13% of protein were fed from the time the pigs averaged 50 lb. until they reached 100 lb., at which time the protein contents of the rations were reduced to 15, 12 and 10%, respectively. The fourth group of pigs was fed ground yellow corn and a soybean oil meal type of protein-mineral-vitamin supplement free-choice throughout the trial.

The soybean oil meal supplement was used along with ground yellow corn to prepare all of the mixed rations. Pigs fed either 18 or 15% protein rations initially, and 15 and 12% protein rations, respectively, during the latter stage of the growing-finishing period, showed no difference in average daily gain or in efficiency of feed utilization, gaining approximately 1.8 lb. daily, and requiring 340 lb. of feed cwt. of gain.

Those pigs fed the lowest protein rations gained approximately .15 lb. less daily, but were just as efficient in conversion of feed to gain. When the ground yellow corn and protein supplement were fed free-choice, the pigs gained as rapidly and as efficiently as did the pigs on either of the higher protein ration sequences.

Pigs fed free-choice consumed a ration containing 13.2% of protein for the entire feeding period, compared to averages of 15.8 and 12.8% of protein where the pigs were fed mixed rations containing either 18 and 15%, or 15 and 12% of protein.

Although slight differences existed in backfat thickness as determined by the probe on the live hogs at time of slaughter, these differences were not great enough, nor were the differences consistent enough, to indicate any real difference in backfat thickness due to protein content of the rations.

Producers were told that free-choice feeding of the energy and protein supplement continues to be a good method of feeding market hogs. They were also cautioned to observe their pigs at various stages of the growing-finishing period, and to make necessary adjustments in the feeding program to prevent consumption of excessive amounts of the more expensive supplement.

South Central Research

Dr. Kenneth Miller, of the South Central Experiment Station, said pigs fed complete mixed rations based on ground ear corn and a soybean oil meal type of supplement gained

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less rapidly but more efficiently on a shelled corn and protein equivalent basis than did pigs fed rations of similar protein content, but based on ground shelled corn and the protein supplement.

The pigs fed ground ear corn rations containing 18% of protein until they weighed 100 lb., and 15% of protein thereafter, were more efficient than were pigs fed the same type of rations containing 14% of protein initially, and 11% of protein after the pigs weighed 100 lb.

The pigs fed the ground ear corn rations had 12% less backfat thickness at time of slaughter than did the pigs fed ground shelled corn rations. Similar results were previously reported from this type of study when lighter weight pigs were used in the experiment.

Pigs fed pelleted barley rations were reported by Dr. Diedrich Reimer, of the Northwest Experiment Station, to gain as rapidly as pigs fed conventional rations based on ground yellow corn and the necessary supplemental feeds.

When a pelleted barley ration containing 13.3% of protein was fed throughout the experiment, the pigs required 10-11% more feed per unit of gain than did the pigs fed the corn ration containing 14.8% of protein initially, and 10.8% of protein after they weighed 100 lb. However, pigs fed pelleted barley rations containing 15.2% of protein until the pigs weighed 100 lb. and 13.2% of protein thereafter, gained just as efficiently —the protein supplemental portion of this ration was based on solvent soybean oil meal.

Replacement of a part of the soybean oil meal with fish meal in the protein supplemental portion of the pelleted barley ration resulted in a slight increase in average daily gains of the pigs, but in no improvement in feed gain ratio. Ration treatment had no consistent effect upon backfat thickness of the pigs at time of slaughter.

Work on Protein Sources

The influence of source of protein in the protein supplement upon performance of growing-finishing pigs fed ground yellow corn, and the protein supplement free-choice, was reported by Dr. R. J. Meade and associates, of the university department of animal husbandry.

Protein - mineral - vitamin supplements were based on solvent soybean oil meal; a combination of solvent soybean oil meal and tankage; a combination of solvent soybean oil meal, tankage and linseed oil meal, and a combination of solvent soybean oil meal, tankage, fish meal, linseed oil meal and dehydrated alfalfa meal.

All protein supplements were prepared to contain approximately the same levels of protein, minerals and vitamins.

Pigs fed ground yellow corn and the soybean meal-tankage supplement gained more rapidly than those fed the other protein supplements. Those pigs fed the more complex supplements consisting of soybean meal-tankage-linseed meal, or soybean meal-tankage-fish meal-linseed meal-dehydrated alfalfa meal, gained at about the same rate as the pigs fed ground yellow corn and the soybean oil meal type of supplement free-choice; however, they ate less total feed per unit of gain and consumed 18 and 23 lb., respectively, less protein supplement per 100 lb. of gain than did those lots of pigs fed either of the other protein supplements.

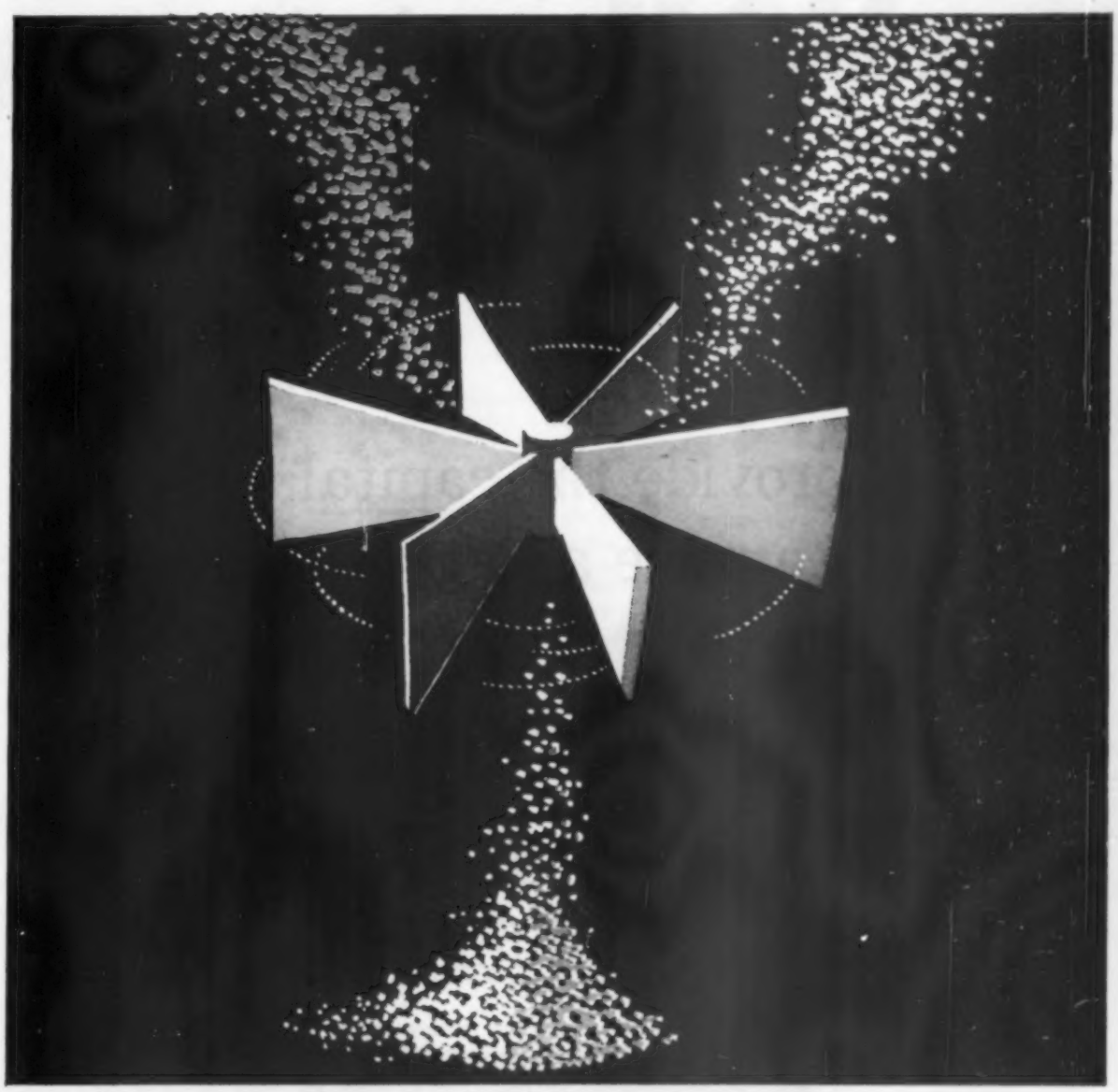
The results of this experiment were not in agreement with those of two studies at the West Central Experiment Station where pigs did not overeat on a soybean oil meal type of supplement when it was fed free-choice with ground yellow corn. Likewise, these results differ from those reported previously in which complete mixed rations for growing-finishing swine were not improved by replacing a part of the solvent soybean oil meal with either tankage, fish meal or dried whole sweet whey.

Swine producers were told that differences such as these may result from differences in basic feeds, as well as differences in groups of pigs. Such differences, they were told, help to point out the necessity of their being constantly aware of the feed consumption patterns of their swine, and of their making necessary adjustments in their feeding program to prevent the overconsumption of the higher cost components of the ration.

ANTIBIOTICS AND ANTIBACTERIAL AGENTS: The results of several studies with antibiotics, antifungal agents and antibacterial agents in rations of growing-finishing swine were also reported. The addition of 20 gm. of a 3:1 mixture of zinc bacitracin and procaine penicillin per ton of ration resulted in only a slight increase in daily gains of pigs fed in drylot, but was without effect when the pigs were fed on pasture.

When the ration contained 6,000 units of Hygromycin B until the pigs weighed 100 lb., and 3,000 units thereafter, pig gains were depressed slightly for the over-all growing-finishing period, but they were not depressed up until the time the pigs averaged 100 lb.

The combination of the antibiotic and Hygromycin B treatments and the use of 90 gm. of arsanilic acid per ton of ration did not improve gains of pigs fed either in drylot or on pasture. The pigs fed continuously in drylot from initial weights of approximately 50 lb. until they reached market weight gained slightly faster than did comparable lots of pigs fed on pasture. The average feed requirement per 100 lb. of gain for all pigs fed in drylot was 324 lb., while that of the pigs fed on pasture was 325 lb. In other tests the addition of 20 gm. of oxytetracycline per ton of ration resulted in a 12% increase in pig gains up to the time the pigs weighed 100 lb., and an increase of 6% in daily gains for the entire growing-finishing period. Chlortetracycline added



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at the rate of 20 gm. per ton of ration caused a 9% increase in gains of pigs for the entire growing-finishing period, the increase in gains of the pigs up to 100 lb. being 15%.

In another test the addition of 15 gm. of streptomycin and 5 gm. of procaine penicillin, or the addition of 20 gm. of Nystatin (Mycostatin 20) per ton of feed caused only slight increases in gains of growing-finishing swine. When this combination of antibiotics and the antifungal agent were added in combination, gains were improved very slightly, and there was a slight improvement in efficiency of feed utilization.

INJECTABLE IRON STUDIES: Pigs injected with 150 or 200 mg. of iron in the form of iron dextran at 3-4 days of age showed 26 and 43%, respectively, greater hemoglobin concentrations in the blood at 35 days of age than did pigs injected with 100 mg. of the same iron compound at 3-4 days of age.

When one half of the 200 mg. dosage was given when the pigs were three days of age, and the remaining half of the dosage given when the pigs were 21 days of age, the hemoglobin levels corresponded to those shown by pigs given 200 mg. of iron in the initial dose.

The use of the higher dosages of the iron dextran compound when the pigs were 3-4 days of age did not result in symptoms of toxicity in the young pig. There was no difference in the 35-day weight of the pigs due to amount of injectable iron administered.

In another test pigs were given 100 or 150 mg. of iron as iron dextran at either 3 or 7 days of age. Each iron treatment was given with and without 30 micrograms of injectable vitamin B_{12}.

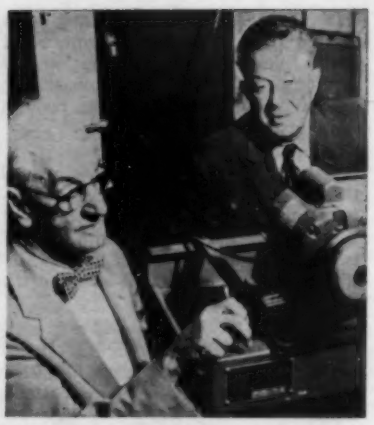
The pigs given the 150 mg. of iron showed higher hemoglobin levels at 35 days of age. Time of injection—3 or 7 days of age—and supplementary vitamin B_{12} administration did not cause differences in hemoglobin levels of the 35-day old pigs. Again, none of the experimental treatments had any influence upon pig weight at 35 days.

When iron was administered to the three-day old pigs in the form of ferric ammonium citrate, the 35-day old pigs showed considerably lower hemoglobin levels than did pigs given comparable amounts of injectable iron in the form of iron dextran, and the 35-day weights of the pigs were also lower.

W. L. Wettlaufer Joins Bartlett & Snow Co.

CLEVELAND — William L. Wettlaufer, inventor and specialist in vibratory screens and related equipment, has joined the C. O. Bartlett & Snow Co., Cleveland, as a consultant, it was announced by Charles O. Bartlett, vice president in charge of sales.

The Wettlaufer product line, consisting of vibratory screens packing units, blenders, granulators and centrifuges, was recently purchased by Bartlett & Snow, designers and builders of material handling and processing equipment. Mr. Wettlaufer will work on new processing equipment development and do special application engineering concerned with Wettlaufer products.



INVENTOR — William L. Wettlaufer (left), inventor of vibratory screens and related equipment, has joined the C. O. Bartlett & Snow Co., Cleveland, as a consultant. The inventor recently sold his product line to Bartlett & Snow, designers and builders of material handling and processing equipment. He is shown demonstrating a feature of a screen to Charles Bartlett, vice president in charge of sales.

Mr. Wettlaufer, 78, is widely recognized as a pioneer in vibratory processing equipment. He started inventing in 1895 with farm machinery, and has since developed several lines of equipment in various industries.

Primarily interested in industrial screening problems, he has developed a new type of vibratory action which permits greater efficiency, faster and finer screening, and is adaptable to a wide range of materials, it was noted in a Bartlett & Snow anouncement.

The recent sale to Bartlett & Snow is the third time Mr. Wettlaufer has sold his product line.

Plans for Animal Health Month Made

DES MOINES — April has again been designated as Animal Health Month, with the theme, "Animal Health Means Farm Wealth," it was announced by D. L. Bruner, executive secretary of the Animal Health Institute, sponsor of the annual event.

"Animal Health Month is designed first of all, to focus the attention of the public on the magnificent job that the nation's livestock and poultry producers are doing to provide consumers with an abundant supply of the finest quality meat, milk, eggs, poultry and other livestock products it is possible to produce," Mr. Bruner said.

"It also is the time when the contributions of thousands of scientists working in all fields of disease prevention and cure, and animal nutrition, can be properly recognized.

"During Animal Health Month the opportunity for still further progress will be emphasized. Animal diseases and parasites still cost farmers hundreds of millions annually in loss of animals, or loss of their production.

"Modern medicaments and modern livestock feeds not only are reducing these losses, but are enabling an increasing number of farmers to produce more livestock products more efficiently and profitably than ever before, and this is the true significance of the theme, 'Animal Health Means Farm Wealth,' that we have chosen for Animal Health Month."

Climax of Animal Health Month will be the 20th annual meeting of the Animal Health Institute, to be held in Washington, D.C., April 17-19, when the institute's Distinguished Service Research Award will be presented to one of the nation's outstanding research scientists.

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George Brambley Francis O'Connor

George R. Brambley Retires from Beacon

CAYUGA, N.Y.—The retirement of George R. Brambley, after 37 years in the feed business, has been announced by the Beacon Milling Co., a division of Spencer Kellogg & Sons, Inc., Cayuga. He was Long Island area manager for Beacon.

Succeeding Mr. Brambley is Francis E. O'Connor.

Mr. Brambley was one of Beacon's earliest employees. He began as a loading checker at the Cayuga plant, and progressed through various positions until he became superintendent of the plant in 1943. In 1945, when Beacon acquired its first branch plant at Eastport, N.Y., he was named general superintendent of that plant. His responsibility there was further increased to that of Long Island area manager for Beacon. He served as a member of the Beacon board of directors from 1954 until the company merged with Spencer Kellogg in 1957.

Mr. O'Connor began his Beacon career as a production worker at Cayuga in 1939. After military service and obtaining an agricultural engineering degree from the University of Missouri, he rejoined Beacon at the firm's Eastport plant. He went from there to the Beacon plant at York, Pa., and became assistant plant manager in 1951. He returned to the Eastport plant in July of this year.

Tranquilizer Tested On Dairy Cattle

BROOKINGS, S. D. — Dairy cows that were fed a tranquilizer at low levels showed no significant change in milk or butterfat production in trials at the South Dakota State College agricultural experiment station.

Dr. Howard H. Voelker, dairy husbandry department, reports that trials were conducted for 74 days to check the response of 31 dairy cows to three levels of hydroxyzine, a tranquilizer. Cows fed 8 mg. of this tranquilizer daily on the grain ration showed no evidence of sedation; neither did those fed 16 or 32 mg. Heartbeat and respiration rates, body weight, and milk and butterfat production did not appear to be affected.

One cow was fed .5 gm. of hydroxyzine daily. Even at this level her heart and respiration rates seemed normal, and milk production was not affected. But two other cows given an intramuscular injection of 1.5 mg. of tetrahydrozoline per pound of body weight were affected. Heartbeat rates dropped from 65 per minute to 45, and remained low for two hours. Milk production dropped 5.6 lb. per cow daily for two days following the injection. The cows also ate less hay and silage.

Some of the tranquilizers may have limited use during stress conditions. They may have a place in calming unruly animals or in traning first-calf heifers for milking, the researcher said.

EDWIN DIAL DIES

SAN FRANCISCO, CAL.—Edwin E. Dial, retired manager of Albers Milling Co., Oakland, died Sept. 29 at Franklin Hospital, San Francisco, after being stricken earlier in the morning at his home at Ross.

MIXERS'
PULVERIZED OATS

A competitively priced grade that has a record for improving the quality of mixed feeds. Also available in pelleted form.

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FRUEN Fruen's MILLING CO.
MINNEAPOLIS, MINN.

Larvacide destroys grain pests
with safety

Effective Larvacide fumigation protects your grain profits

Insects! They're your Number One threat to top prices and high quality grain.

You can destroy insects with Larvacide—the grain fumigant that answers all three of these big questions with a powerful "YES!"

Is it Safe for My Men?

YES! Your men will detect Larvacide . . . even in tiny amounts. No one willingly stays near when harmful quantities are in the air. This means your employees can do the fumigation safely, without delay—when it's convenient or urgent.

Is it Free from Tolerance?

YES! In fact, it's exempt. You're totally safe under the Miller Act. Some fumigants build up poisonous residues and often cause treated grain to be condemned and seized. But not Larvacide. Since its active ingredient is chloropicrin, it leaves no residue whatsoever. You have no risk of seizure due to residue buildup.

Is it Effective?

YES! Larvacide kills larvae and eggs as well as adult insects. And you use only a small quantity of fumigant. This high rate of insect kill helps Larvacide keep your grain from developing odors and spoiling in storage.

As with all active chemicals, follow full directions on the container and use proper safety precautions. Use the coupon to get more facts or to ask for a visit from your trained Larvacide serviceman.

Weevily grain discounted up to 45¢ per bushel

Insect infested grain can cost an elevator operator 7¢ to 45¢ per bushel, according to USDA figures.

Insects in the grain are sometimes hard to detect. Damage may be well along before it's noticed. All too often, it's the Commodity Credit inspector who finds it. And by that time, it may already have cost thousands of dollars.

This is a business risk you don't have to take. You can substantially reduce it with fumigation.

Modern fumigating practices permit you to put your grain under constant guard all through the storage period.

Best of all, fumigation is not expensive. It's low-cost insurance to assure profits in your business.

By storing only clean grain and fumigating to protect it from insect damage, you can assure yourself of high grades under the Clean Wheat Program.

It will help you make top profits, too.

Free fumigation help available

Your Larvacide serviceman is trained to help you master every type of grain fumigation problem. He can show you actual examples of solved storage problems which prove Larvacide's effectiveness, safety, and freedom from tolerance. Call on him frequently. If you don't know him, use the coupon below.

Application is easy . . . Use Larvacide equipment or your own

Now, you can make the fumigation job a simple, automatic operation. Your Larvacide distributor will help you.

He'll show you Larvacide treating equipment . . . and how the Larvacide engineering service fits it into each "customized" or "do-it-yourself" installation. He can show actual drawings of facilities like your own.

He'll also explain the 3 Larvacide fumigation systems and the recommended Larvacide formulation for each.

Application by Recirculation

This method is used in flat grain storage. A Larvacide piping system and recirculation ducts provide even distribution of Larvacide throughout the grain. Larvacide 85, aerosol, is the recommended formulation for this set-up.

Application in the Grainstream

You can fumigate when the grain is being turned or put into storage with this system. A Larvacide automatic grain stream applicator, using Larvacide 100, makes it a fast, easy job. After filling, keep the bin closed for several days to get good insect control.

Application to Grain Surface

If you have no aeration for bins or flat storage, you can apply Larvacide 15 directly on the surface of the grain. Take care to get even distribution. A Larvacide sprinkler system, spray nozzle, or even a sprinkling can may be used.

Send coupon for facts on Larvacide and equipment

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Division of Morton Chemical Company
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Chicago 6, Illinois

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Panogen Company
110 N. Wacker Drive
Chicago 6, Illinois

☐ Send information on Larvacide
☐ Send information on equipment and installation
☐ Send name of nearest distributor
☐ Have representative call

Name:_____
Address:_____

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BOTH GRAIN FERMENTATION PRODUCTS

NADRISOL

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These economy fortifiers are rich in proteins, vegetable fats, and highly nutritious. They also contain essential Vitamin B-G Complex factors, as well as unidentified growth factors. Mixing Nadrisol or Produlac in your formula feeds will promote quicker growth, greater meat and egg yield and will produce feeds your customers want to buy. It's a good way to gain and hold customer acceptance.

Sold only to manufacturers of formula feeds.

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GRAIN PRODUCTS SALES

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Convention Calendar

Oct. 19-20—Beef Research Conference (attendance by invitation); Purdue University, Lafayette, Ind.; sponsored by Agricultural Research Institute and National Academy of Sciences-National Research Council; Dr. C. B. Cox, Agricultural Economics Department, Purdue University.

Oct. 19-20—California Animal Industry Conference; Fresno Memorial Auditorium, Fresno, Cal.; sponsored by California Hay, Grain & Feed Dealers Assn. and University of California; chm., Berton Maxwell, Poultry Producers of Central California, Petaluma.

Oct. 20-21—Virginia State Poultry Federation; Hotel John Marshall, Richmond, Va.; sec., J. Paul Williams, 615 E. Franklin St., Richmond 19, Va.

Oct. 21—North Dakota Swine Day; North Dakota Agricultural College, Fargo; M. L. Buchanan, Chief, Division of Animal Industry.

Oct. 21-22—Nebraska Poultry Improvement Assn.; Hotel Lincoln and Armory (exhibits), Lincoln; chm., Poultry Husbandry Bldg., University of Nebraska, Lincoln.

Oct. 22—North Dakota Turkey Federation; American Legion Hall, Cooperstown; sec., Irving J. Mork, Department of Poultry Husbandry, North Dakota Agricultural College, State College Station, Fargo.

Oct. 22-23 — Annual Stockholders Meeting, Cooperative G.L.F. Exchange, Inc., Onondago County War Memorial Building, Syracuse, N.Y.

Oct. 22-23—Iowa Seed Dealers Assn.; Savery Hotel, Des Moines; sec., Bob Skinner, 928 Des Moines Bldg., Des Moines 9, Iowa.

Oct. 22-23—Washington Poultrymen's Institute; Washington State University, Pullman.

Oct. 23—Arkansas Poultry Study Day; University of Arkansas, Fayetteville; Prof. Robert M. Smith, Department of Animal Industry and Veterinary Science.

Oct. 27-28—Indiana State Poultry Assn.; Hotel Severin, Indianapolis; sec., Robert L. Hogue, Poultry Science Bldg., Purdue University, Lafayette, Ind.

Oct. 29—Nebraska Feed & Nutrition Conference; University of Nebraska, Lincoln; chm., Dr. John Adams, Poultry Husbandry Department.

Oct. 29-30—Washington Poultry and Hatchery Assn.; Ben Franklin Hotel, Seattle.

Oct. 29-30—West Virginia Feed Dealers Assn.; Blackwater Falls Lodge, Davis; sec., J. S. Larrick, Beckley Ice & Feed, Beckley, W. Va.

Oct. 30—Rooters Day; University of Nebraska, Lincoln; Dr. E. R. Peo, Animal Husbandry Department.

Oct. 30—Illinois Sheep Producers Day; University of Illinois, Urbana; chm., Dr. U. S. Garrigus, Department of Animal Science.

Nov. 1-4—Mississippi Poultry Improvement Assn., Biloxi; Dean & Director, Division of Agriculture, Mississippi State University, State College, Miss.

Nov. 4-5—Kansas Poultry Assn.; Broadview Hotel, Wichita; sec., Harry J. Reed, Box 663, Manhattan, Kansas.

Nov. 4-5—Illinois Feed Assn. and Illinois Poultry Improvement Assn., joint convention; Armory, Springfield, Ill.; IFA, Leland Hotel; sec., Dean M. Clark, Board of Trade Bldg., Chicago; IPIA, St. Nicholas Hotel; sec., Aubrey Harless, Box 91, Shelbyville, Ill.

Nov. 4-7 — National Renderers Assn., Hollywood Beach Hotel, Hollywood Beach, Fla.; sec., Miss Jamie Fox, 30 N. La Salle St., Chicago 2, Illinois.

Nov. 5-6—Florida Nutrition Conference; Medical Center Auditorium, University of Florida, Gainesville; sponsored by Florida Feed Dealers Assn. and Florida Agricultural Experiment Station; chm., Dr. J. P. Feaster, Department of Animal Husbandry and Nutrition.

Nov. 6-7—Oklahoma Formula Feed

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Bauer No. 208-2A

Specific Gravity Separator

It's called the Jitterbug in the seed industry because of its various internal movements.

Shelled corn, other grains, and seeds are cleaned by a combination of pneumatic and mechanical forces. There's no other separator like it.

Debris is sucked out by air and vibrated out mechanically. The grains or seeds are thoroughly cleaned at the rate of up to 6,000 lbs. per hour. And all this is done in a machine which covers only 4' x 4' floor space.

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Conference; Oklahoma State University, Stillwater; chm., Dr. Rollin H. Thayer, Poultry Science Department. Jackson Blvd., Chicago 4, Ill.

Nov. 12-13—Cornell Nutrition Conference; Hotel Statler, Buffalo, N.Y.; chm., Dr. F. W. Hill, Poultry Husbandry Dept., Cornell University, Ithaca, N.Y.

Nov. 11-13—Cornell Nutrition Conference; Hotel Statler, Buffalo, N.Y.; chm., Dr. M. L. Scott, Poultry Husbandry Department, New York State College of Agriculture, Cornell University, Ithaca, N.Y.

Nov. 13-14 — Oregon Sheep and Wool Days, Oregon State College, Corvallis; chm., Dr. C. W. Fox, Dairy & Animal Husbandry Dept.

Nov. 16—North Dakota Sheep Day; North Dakota Agricultural College, Fargo; M. L. Buchanan, Chief, Division of Animal Industry.

Nov. 16—Tennessee Feed Manufacturers Assn., Claridge Hotel, Memphis, Tenn.; sec., Charles H. Warfield, American Trust Bldg., Nashville, Tenn.

Nov. 16-17—Washington Animal Industry Conference; Yakima Junior College, Yakima, Wash.; John G. Wilson, Washington State Feed Assn., Inc., 814 Second Avenue Bldg., Seattle 4.

Nov. 18—School for Poultry Servicemen; University of New Jersey, Agricultural Experiment Station, New Brunswick; chm., R. L. Squibb, Department of Poultry Science.

Nov. 19-20—National Swine Industry Conference; Iowa State University, Ames; chm., Keith Myers, National Swine Growers Council, Grundy Center, Iowa.

Nov. 21—Missouri Sheep Day, University of Missouri, College of Agriculture, Columbia; C. V. Ross, Department of Animal Husbandry.

Nov. 22-24—Western Grain & Feed Assn. of Iowa; Fort Des Moines Hotel, Des Moines, Iowa; sec., Bob Skinner, 928 Des Moines Bldg., Des Moines 9, Iowa.

Nov. 23-25—Alabama Animal Nutrition and Management Conference; Duncan Hall, Alabama Polytechnic Institute, Auburn; sponsored by Alabama Feed Assn., sec., Merlin Bryant, Brundidge Milling Co., Inc., Brundidge, Alabama.

Nov. 27-28—American Society of Animal Production; Sherman Hotel, Chicago, Ill.; sec., Dr. H. H. Stonaker, Colorado State University, Ft. Collins, Colo.

Nov. 30-Dec. 1—Midwest Veterinary Nutrition Conference; President Hotel, Kansas City; sec., Lloyd Larson, Midwest Feed Manufacturers Assn., 20 W. 9th Street Bldg., Kansas City 5, Mo.

Dec. 2—Ontario Retail Feed Dealers Association; King Edward Sheraton Hotel, Toronto; sec., Murray McPhail, 69 Yonge Street, Toronto.

Dec. 3-4—North Carolina Animal Nutrition Conference; North Carolina State College, School of Agriculture, Raleigh; chm., E. R. Barrick, Head, Animal Husbandry Section.

Dec. 4-5 — Arkansas Turkey Convention and Show; Berryville, Arkansas; sec., Charles D. Hawks, P. O. Box 1446, Little Rock.

Dec. 7-9—Minnesota Poultry Assn., Radisson Hotel, Minneapolis; sec., L. L. Baumgartner, Litchfield, Minn.

Dec. 7-11—Washington Stockmen's Short Course; Washington State University, Pullman.

Dec. 8-9 — Poultrymen's Service Clinic; Cornell University, Ithaca, N.Y.

1960

Jan. 4-5—Kansas Formula Feed Conference; Kansas State University, Manhattan, Kansas.

Jan. 4-8 — Retail Feed Dealers Training School; University of Minnesota, St. Paul; Dr. J. O. Christianson, Director of Agricultural Short Courses, Institute of Agriculture, St. Paul 1.

Jan. 5-7—National Turkey Federation; Hotel Leamington, Minneapolis; sec., M. C. Small, P.O. Box 69, Mt. Morris, Ill.

Jan. 17-19—Indiana Grain & Feed Dealers Assn.; Claypool Hotel, Indianapolis, Ind.; sec., Fred K. Sale, 600 Board of Trade Building, Indianapolis, 4, Ind.

Jan. 25-27 — Southeastern Poultry & Egg Assn.; Municipal Auditorium, Atlanta, Ga.; sec. Harold E. Ford, 235 E. Ponce de Leon Ave., Decatur, Ga.

Feb. 2-4 — American Dehydrators

CALENDAR FOR 1959-60

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Assn.; Broadmoor Hotel, Colorado Springs; exec. vice pres., Joseph Chrisman, 430 Board of Trade Bldg., Kansas City 5, Mo.

Feb. 4-5—Oregon Animal Industry Conference; Oregon State College, Corvallis, Ore.; chm., Dr. J. E. Parker, Poultry Husbandry Department.

Feb. 8-9—Montana Nutrition Conference; Montana State College, Bozeman; chm., Dr. O. O. Thomas, Animal Industry Dept.

Feb. 8-9—Midwest Feed Manufacturers Assn.; Muehlebach Hotel, Kansas City; exec. vice pres., Lloyd Larson, 20 W. 9th St. Bldg. Kansas City 5, Mo.

Feb. 10-11—Pacific Northwest Feed Mill Production School; Chinook Hotel, Yakima, Wash.; sponsored by Washington State Feed Assn., mgr., John G. Wilson, 814 Second Ave. Bldg., Seattle 4, Wash.

Feb. 11—Boston Grain and Flour Exchange Annual Banquet; Sheraton-Plaza Hotel, Boston; chm., Paul Sutliff, 177 Milk St., Boston, Mass.

Feb. 12—Washington State Feed Assn.; Chinook Hotel, Yakima, Wash.; annual convention; mgr., John G. Wilson, 814 Second Ave. Bldg., Seattle 4, Wash.

Feb. 12-14—Fact Finding Conference, sponsored by the Institute of American Poultry Industries; Municipal Auditorium, Kansas City, Mo.; pres., Harold M. Williams, 59 East Madison, Chicago, Ill.

Feb. 21-23—Ohio Grain & Feed Dealers Assn.; Commodore Perry Hotel, Toledo; sec., George G. Greenleaf, 5625 N. High St., P.O. Box 121, Worthington, Ohio.

Feb. 23-24—Virginia Feed & Nutrition Conference; Hotel Roanoke, Roanoke; J. Paul Williams, sec., Virginia State Feed Assn., 615 E. Franklin St., Richmond, Va., or Prof. Paul M. Reaves, Department of Dairy Science, Virginia Polytechnic Institute, Blacksburg, Va.

March 7-8—Grain & Feed Dealers National Assn.; Hotel Muehlebach, Kansas City; sec., Herbert L. Sharp, 400 Folger Bldg., Washington 5, D.C.

March 17-18—Oregon Feed & Seed Dealers Assn.; New Sheraton Hotel, Portland, Ore.; mgr., Russ Hays, 702 Lewis Bldg., Portland, Ore.

Mar. 17-18—Maryland Nutrition Conference; Shoreham Hotel, Washington, D. C.; chm., Richard D. Creek, University of Maryland, Department of Poultry Husbandry, College Park.

March 23—Distillers Feed Conference; Sheraton Gibson Hotel, Cincinnati; sponsored by Distillers Feed Research Council; exec. director, Dr. Lawrence E. Carpenter, 1232 Enquirer Bldg., Cincinnati, Ohio.

April 1-2—Texas Grain & Feed Assn., Shamrock Hotel, Houston; sec., Ray B. Bowden, 407 Fort Worth Club Bldg., Ft. Worth 2, Texas.

April 5-7—Nebraska Grain & Feed Dealers Assn.; Pershing Municipal Auditorium, Lincoln; sec., Howard W. Elm, Trust Bldg., Lincoln, Neb.

April 11-13—Poultry and Egg National Board, LaSalle Hotel, Chi-

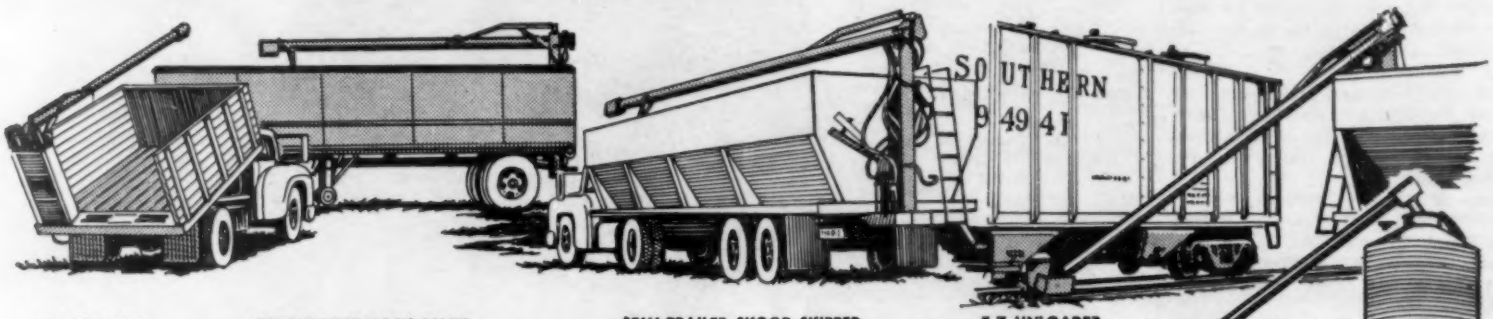
W. R. Shaffer Joins Hales & Hunter Staff

CHICAGO—William R. Shaffer has joined Hales & Hunter Co.'s poultry feeds department as a staff assistant specializing in merchandising.

W. R. Shaffer

The appointment was made by Alex Gordeuk, manager of the department.

Mr. Shaffer, formerly associated with Shaffer's Hatchery, Woodstock, Va., a family enterprise, is a past president of the Virginia State Poultry Federation and has been a member of the board of directors of the National Broiler Council and the Poultry & Egg National Board.



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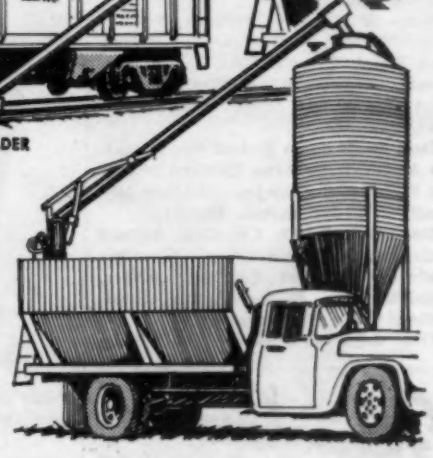
"Pamco — our best business booster" is a common phrase in the bulk industry today. Pamco's reputation is founded on combining quality with simplicity, yet priced reasonably. Pamco makes handling sacks as obsolete as the scoop shovel. Shrinks your overhead costs while sparking new business . . . takes the backache out of customer service.

Back Saver . . . attaches to any grain box. Exclusive unloading and loading anywhere, anytime. Pellets handled with minimum breakage. Smooth hydraulic operation.

Skoop Skipper . . . tank stabilization. Standard 2, 3, or 4 compartment units. Pamco positive seal assures against leakage of materials. Dispersing auger for loading leads into each compartment. Double gate per compartment standard for each unit.



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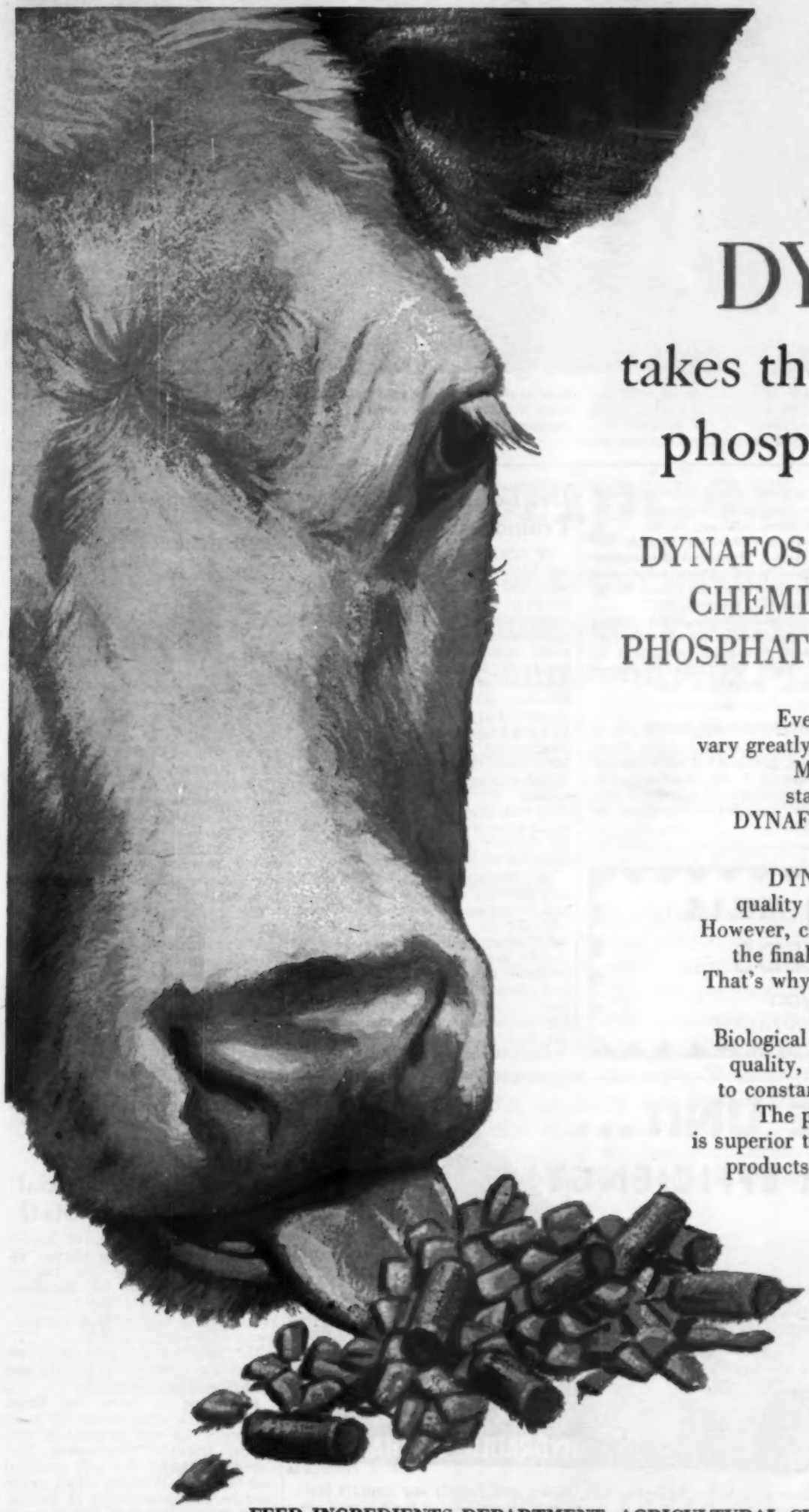

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takes the waste out of phosphorus feeding

DYNAFOS PROVES THAT ALL CHEMICALLY-PROCESSED PHOSPHATES ARE NOT ALIKE

Even chemically-processed phosphates vary greatly in their availability to the animal. Many fail to measure up to the high standards of International's Dynamic DYNAFOS—the only dicalcium phosphate with *biological control.*

DYNAFOS is chemically produced and quality guarded with 38 separate analyses. However, chemical analyses alone do not give the final answer of true phosphate quality. That's why International maintains biological control on DYNAFOS production.

Biological availability tests assure day-to-day quality, and enable International scientists to constantly improve Dynamic DYNAFOS. The practical result: today's DYNAFOS is superior to unprocessed or poorly processed products. Write or wire your International representative for details on Dynamic DYNAFOS.

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Sales Agents: **EASTERN AREA:** GRANDONE, INC., Needham (Mass.); SUNSET FEED & GRAIN CO., INC., Buffalo; P. R. MARKLEY, INC., Philadelphia; A. G. GREENE COMPANY, Charlotte (N. Carolina); EDWARD E. SMITH COMPANY, Atlanta; E. A. CARTER BROKERAGE COMPANY, Tampa. **CENTRAL AREA:** BULLARD FEED COMPANY, Chicago; GOOD LIFE CHEMICALS, INC., Effingham (Ill.); JOHN F. YOUNG COMPANY, Cincinnati; R. D. ERWIN COMPANY, Nashville; CHAS. F. WILLEN CO., INC., Birmingham (Ala.); STANDARD SALES COMPANY, Meridian (Miss.); The VITA PLUS CORPORATION, Madison, (Wis.). **MIDWEST AREA:** BLOMFIELD-SWANSON, Minneapolis; W. P. MANN SALES CO., Omaha; M. A. McCLELLAND COMPANY, Kansas City (Mo.); B. A. LUCIUS COMPANY, Fort Worth. **WEST COAST:** JAMES FARRELL & COMPANY, Seattle; JAMES FARRELL & COMPANY, Compton, (Calif.). **CANADA:** N. D. HOGG LTD., Toronto.

IOWA CONFERENCE—Pictured are three of the afternoon speakers at the Iowa College-Feed Industry Conference. At the left, Dr. Damon Catron, Iowa State swine researcher, describes the "feed customer of the future." Dr. James Gwin, Ralston Purina Co. (center), displayed pictures to illustrate his talk on changes in egg production and marketing. Dr. Wise Burroughs (right), Iowa State ruminant research specialist, summarized results at several experiment stations on pelleted feeds for cattle.

cago, Ill.; mgr., Floyd Geil, 8 S. Michigan Ave., Chicago 13, Ill.

April 21-23—California Hay, Grain & Feed Dealers Assn., Ambassador Hotel, Los Angeles; sec., John Gilmore, Blue Anchor Bldg., 1400 10th St., Sacramento 14, Cal.

April 21-23—Kansas Grain & Feed Dealers Association; Broadview Hotel, Wichita, Kansas; sec., Orris E. Case, 609 Wiley Bldg., Hutchinson, Kansas.

April 22 — Nebraska Livestock Feeders Day; University of Nebraska, College of Agriculture, Lincoln; chm., Wm. J. Loeffel, Animal Husbandry Dept., Lincoln 3, Neb.

May 1-4—National Fisheries Institute; Hotel Fontainebleau, Miami Beach, Fla.; asst. gen. mgr., Mal Xavier, 1614 20th St. N.W., Washington 9, D.C.

May 9-11—American Feed Manufacturers Assn.; Conrad Hilton Hotel, Chicago; sec., W. T. Diamond, 53 W. Jackson Blvd., Chicago 4, Ill.

June 14-15—Alabama Poultry Industry Assn.; Municipal Auditorium (Exhibits) and Thomas-Jefferson Hotel, Birmingham, Ala.; sec., W. L. Walsh, Box 567, Montgomery.

July 23-26—Georgia Feed Assn.; General Oglethorpe Hotel, Wilmington Island, Savannah; sec., Will L. Kinard, Suite 210, 3240 Peachtree Road Bldg., Atlanta 5, Ga.

SELLS SALES BARN

BONAPARTE, IOWA—Max Reno, auctioneer, has sold his sales barn at Bonaparte to J. E. Troutman. Mr. Reno will continue to operate a feed store and hog-buying business at Bonaparte.

Dr. LeGear Names Promotion Officer

ST. LOUIS—James E. Westermann has been appointed sales promotion manager for Dr. LeGear, Inc., St. Louis. The announcement of his appointment was made recently by Dr. D. H. LeGear, president of the 67-year-old firm, manufacturer of animal health pharmaceuticals. Mr. Westermann's responsibilities will include the creation and direction of all sales promotional programs for Dr. LeGear, Inc., as well as supervision of its printing department.

J. E. Westermann

Mr. Westermann has had 14 years of experience in the advertising, art and promotional fields, including such positions as editorial cartoonist for the Chicago Daily News, assistant to Buford Tune (creator of the "Dotty Dripple" comic strip), layout artist and advertising copy writer. For the past 7½ years, he has been advertising and sales promotion manager and art director of the G. H. Packwood Manufacturing Co., St. Louis.

Illinois Meeting Speakers Chosen

CHICAGO—Feed and poultry dealers and manufacturers who convene at the Springfield (Ill.) Armory Nov. 4-5 for the annual joint convention of the Illinois Feed-Illinois Poultry & Hatchery Federation will hear several outstanding speakers.

To officially open the convention on Wednesday morning, Dr. Nicholas Nyaradi, director, Institute of International Studies, Bradley University, Peoria, will speak on "Will Free Enterprise Survive?"

That afternoon, Dr. David Dodd Henry, president, University of Illinois, will speak, followed by Tom Lawrence, senior partner, management consultant firm of Lawrence-Leiter & Co., Kansas City. Mr. Lawrence will conduct a management seminar both days.

On Thursday morning, the breakfast speaker will be William E. Skadden, Springfield, a lecturer and writer of varied experience. Dr. Robert Grimmer Seymour, director, Executive Development Center, and associate professor of business management, University of Illinois, and L. S. Strom, vice president, Market Research Corporation of America, Chicago, complete the list of speakers.

Some 1,000 dealers are expected to attend the convention, at which nearly 100 exhibitors will display their products and services.

USDA Poultry Official Joins California Staff

DAVIS, CAL.—Dr. A. W. Brant, 40, former chief of the poultry research branch of the U.S. Department of Agriculture at Beltsville, Md., recently joined the University of California here as food technologist.

Dr. Brant's work will be in research and extension on poultry and animal products technology.

In coming to Davis, Dr. Brant leaves USDA after nearly 10 years of service. He was recipient in 1956 of the USDA's "Outstanding Performance Rating" for both practical and fundamental contributions to the welfare and productivity of the nation's poultry industry. His research on methods of detecting blood spots in eggs received a USDA Superior Service Award in 1954.

Dr. Brant received a B.S. degree at Kansas State University, M.S. degree at Michigan State University and Ph.D. in poultry products technology from Iowa State University.

He holds patents on an "Egg Separating Machine," and "Method and Apparatus for Detecting Blood in Eggs."

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A COMPLETE UNIT...

WITH MAXIMUM EFFICIENCY!

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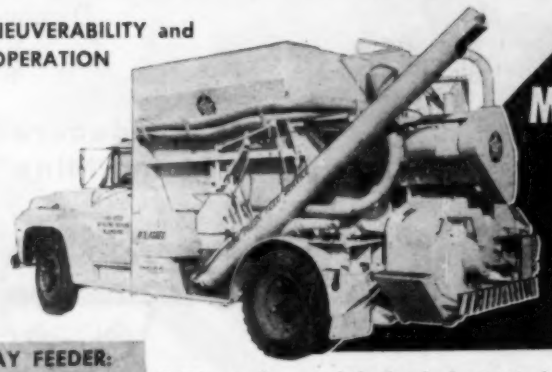

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B&L's BALED HAY FEEDER:

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- UTILIZES FULLEST EQUIPMENT EFFICIENCY

B&L's modern mobile feed plant grinds, mixes, and blends **any** formula feed right at the barn door and offers on-the-spot bulk delivery of feeds with **both** air and hydraulically positioned auger discharge. Exclusive design makes possible highly profitable **one-man** operation. B&L's high-speed molasses blending plus its dual mixing system produce complete feeds that satisfy exacting quality standards.

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BARNARD & LEAS Manufacturing Company INC.

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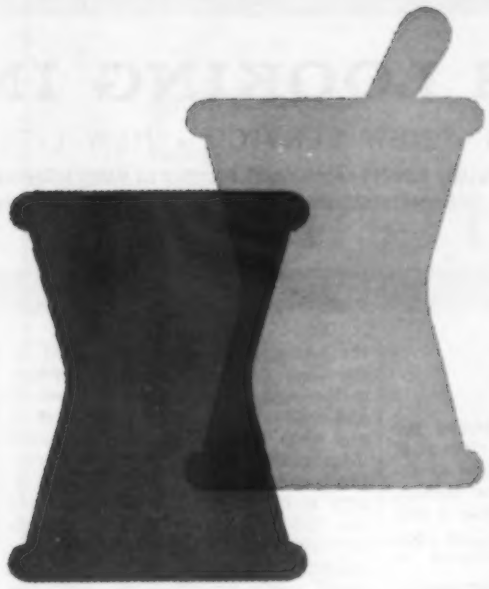
Dawe's



prescription service

For better quality control have your Fortifying Premixes compounded by Specialists

Enjoy the convenience, economy and quality control advantages of having your feed fortifiers compounded by specialists. Dawe's Prescription Service provides you any practical combination and potency of vitamins, medicaments, or other additives, custom-blended and custom-packaged to your precise specifications.

You save the time and expense of proportioning and premixing micro-ingredients and minimize the chances of costly errors, which improves your quality control. Batch-size packaging simplifies your production. One order replaces scattered buying. You avoid unbalanced inventories of individual ingredients.

Through Dawe's Prescription Service, you get skill, accuracy and dependability developed in over 30 years' specialization in vitamin nutrition and feed fortification. Write for quotations on your fortifiers. You'll like Dawe's consistent, uniform quality and fast, personalized service.

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VENEZUELA—Apartado 3050, Caracas

WORTH LOOKING INTO

NEW PRODUCTS • NEW SERVICE • NEW LITERATURE

DESCRIPTIONS OF NEW AND IMPROVED PRODUCTS AND SERVICES PROVIDED BY MANUFACTURERS AND SUPPLIERS ARE PRESENTED IN BRIEF FORM. FOR ADDITIONAL INFORMATION, PLEASE USE THE ACCOMPANYING COUPON.

No. 7685—Lamb Hormone Implants

Hormone implants for lambs recently introduced by Chas. Pfizer & Co., Inc., are now being made available in 1,000-pellet packs, or enough implants for 1,000 lambs over a full feeding period. "Stimplants," as they are called, are being marketed in

"cartridge pack" clips of 25 pellets, 10 clips to each of four envelopes in the plastic pack. According to the company, tests show the single-implant pellets can help produce up to 40% increase in daily gains and up to 23% improvement in feed efficiency. For more information check No. 7685 on the coupon and mail.

No. 7684—Multiple Vaccine

A multiple vaccine containing live virus immunizing fractions against Newcastle disease, infectious bronchitis and fowl laryngotracheitis has been announced by American Scientific Laboratories, Inc. Called "Triplvax," the product is administered by the vent drop method. The product is the result of laboratory research and field studies, the company says, and tests have shown that the vent drop method tends to reduce the respiratory reactions while the immunity is comparable to that obtained via the respiratory route. According to company literature, it is anticipated that the product will help avoid many complications, including chronic respiratory disease. The vaccine is given to broilers at least 10 days old and normally one application will give flock protection to marketing age against all three diseases, the company says. For replacement flocks, the vaccine is given as the initial vaccination against Newcastle bronchitis and laryngotracheitis during the growing period between 10 and 14 weeks of age. When birds have been vaccinated at an early age for Newcastle and bronchitis, the product can be applied as a booster at 10 to 14 weeks for either or both vaccines, and as an initial vaccination for laryngotracheitis. For more information check No. 7684 on the coupon and mail.

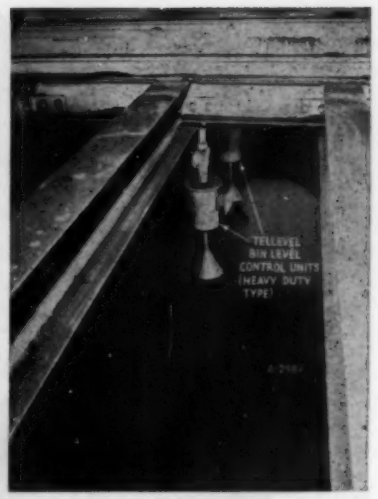
No. 7683—Combination Spreader

Gaddis Bros. Manufacturing Co. announces the Model 100 "Dual-Purpose Combination Spreader." The unit features a triple drive fan assembly incorporating a two-speed transmission, cab-controlled, allowing simple shifting for wide or narrow spread applications of lime and fertilizer, whichever is desired. Two 20 in. diameter distributor fans have

built-in slip clutch drive arrangement which eliminates all chain and sprocket drives, the company says. The 34 in. conveyor drag chain is driven by a 50:1 worm gear drive case with a 2 in. drag shaft driving 12 tooth steel conveyor drive sprockets. The 50° sloping sides along with the wide conveyor eliminate bridging of materials and allow self-cleaning of the unit, the company says. For more information check No. 7683 on the coupon and mail to this publication.

No. 7681—Bin Level Controls

Three styles of "Tellevel" bin controls, to automatically control the level of material in bins, have been announced by Stephens-Adamson Manufacturing Co. The three include normal duty, explosion-proof and heavy duty. Each control is a self-contained unit with a pendant float which operates a sensitive enclosed switch, the company says. The units



are mounted in bins or tanks to regulate level of bulk materials. As the material level rises or falls, the controls will stop or start feed conveyors or elevators. The units can be installed to operate warning lights or horns. Automatic control or signal systems can be arranged by installing one or more controls near the top, bottom or at various levels in a bin or tank in which bulk materials are stored. For further information check No. 7681 on the coupon and mail.

No. 7682—General Catalog

The 1959-60 edition of the Dow Chemical Co.'s general catalog is now available. The 44-page publication, called "Products of The Dow Chemical Company," lists the properties and uses of some 375 industrial, pharmaceutical and agricultural chemicals currently produced. The listing includes established products and developmental items. For copies of the catalog check No. 7682 on the coupon and mail.

No. 7680—Bovine Mastitis Treatment

A free dose of "Gargon" (thiostrepton) is being offered by Squibb

Send me information on the items marked:

- ☐ No. 7680—Bovine Mastitis Treatment
- ☐ No. 7681—Bin Level Controls
- ☐ No. 7682—General Catalog
- ☐ No. 7683—Combination Spreader
- ☐ No. 7684—Multiple Vaccine
- ☐ No. 7685—Lamb Hormone Implants

(PLEASE PRINT OR TYPE)

Others (list numbers) .....

NAME .....

COMPANY .....

ADDRESS .....

——— CLIP OUT—FOLD OVER ON THIS LINE—FASTEN (STAPLE, TAPE, GLUE)—MAIL ———

FIRST CLASS PERMIT No. 2
(Sec. 34.9, P. L. & R.)
MINNEAPOLIS, MINN.

BUSINESS REPLY ENVELOPE
No postage stamp necessary if mailed in the United States

POSTAGE WILL BE PAID BY—

Feedstuffs

P. O. Box 67

Reader Service Dept. Minneapolis 40, Minn.

BINGMAN'S Animal Health Products

Less Mastitis—Higher Milk Production — More Profits

new approach to Herd Health

Results of tests using BINGMAN'S P-17

During this test period herds were fed BINGMAN'S P-17 at low level.*

BINGMAN'S P-17

WHEN FED AS DIRECTED P-17

Aids in Control of MASTITIS

Aids in Reduction of SCOURS

Aids in Prevention or Treatment of FOOT ROT

Aids in Reduction of RESPIRATORY INFECTIONS

	FIRST TEST			SECOND TEST (in 90 days*)			
Herds Tested	Quarters Tested	Clear	Infd.	Quarters Tested	Clear	Infd.	Percent Cleared
A.	32	21	11	28	18	0	100%
B.	95	76	19	112	108	4	79%
C.	80	34	46	68	55	13	72%
D.	68	52	16	68	64	4	78%
E.	74	38	36	79	72	7	81%
F.	83	69	14	78	76	2	85%
G.	60	34	26	44	39	5	81%
H.	36	27	9	28	26	2	77%
I.	16	11	5	16	15	1	80%
J.	32	16	16	28	25	3	81%
K.	48	41	7	60	59	1	86%
	624	419	205	609	567	42	79.5%

INDICATION OF SEVERITY OF INFECTION

Degree	1st Test	2nd Test
Slight	94	30
Infected (Mastitis)	66	9
Chronic (Mastitis)	45	3
Total	205	42

ASK ABOUT BINGMAN'S P-17 GUARANTEED FEEDING PROGRAM!

BINGMAN LABORATORIES, INC.
A Subsidiary of S & H LABORATORIES, Inc., CALDWELL, OHIO
Note: Sales representatives wanted in many good areas. Write for details.

division of Olin Mathieson Chemical Corp. as a trial treatment for bovine mastitis. Packaged in a disposable syringe, the offer is being made with the purchase of 11 doses. Gargon, the company says, contains no penicillin, and attacks all nine types of mastitis-causing bacteria. The syringe is equipped with an elongated nozzle which is smaller than the opening of most milk tubes. The nozzle slides into the smaller teat opening and enables the ointment to be squeezed directly through the teat canal into the infected quarter, the company says. For more information check No. 7680 on the coupon and mail.

Also Available

The following new products have been described in previous issues of Feedstuffs and information about them may still be obtained by jotting the appropriate number on the coupon and forwarding it to Feedstuffs.

No. 7633—Vibration inducer, Martin Engineering Co.

No. 7634—Pig raising information. Chore Boy Manufacturing Co., Inc.

No. 7635—Mastitis ointment, Merck & Co., Inc.

No. 7646—Impact mill, Safety Industries, Entoleter Division.

No. 7647—Grain storage building, Stran-Steel Corp.

No. 7648—Grain cleaner, Superior Co.

No. 7649—"New Leader" spreader, Highway Equipment Co.

No. 7650—New package size, Hess & Clark.

No. 7651—Boiler bulletin, Superior Boiler Works.

No. 7652—Feed grinder bulletin, Gruendler Crusher & Pulverizer Co.

No. 7653—Cattle cobalt bullet, Nichols of America Ltd.

No. 7654—Feed body options, Gaddis Brothers Manufacturing Co., Inc.

No. 7655—Hydraulic mobile mill, Iowa Portable Mill.

No. 7656—Sales letter booklet, Gladwin A. Read Co.

No. 7657—Belt joining booklet, Imperial Belting Co.

No. 7658—New control unit, Hot Spot Detector, Inc.

No. 7659—Bulk feed handler, Dodgen Industries.

No. 7660—Lamb hormones, Chas. Pfizer & Co., Inc.

No. 7661—Bulk feed body, Gaddis Bros. Manufacturing Co., Inc.

No. 7662—Fly maggot control, Allied Chemical.

No. 7663—New hopper, Richardson Scale Co.

No. 7664—Vitamin products, Merck & Co., Inc.

No. 7665—Pneumatic conveying data, Sprout, Waldron & Co., Inc.

No. 7666—Continuous voltage stabilizer, Hot Spot Detector, Inc.

No. 7667—Electric vibrators, Cleveland Vibrator Co.

No. 7668—Mobile air unit, Ripco Air Systems, Inc.

No. 7669—Vibrating screen, the C. O. Bartlett & Snow Co.

No. 7670—Hog production record, American Cyanamid Co.

No. 7671—Grain handling system, Dunbar Kapple, Inc.

No. 7672—Indicator unit, Richardson Scale Co.

No. 7673—Egg business record, L. A. Pockman Manufacturing Co.

No. 7674 — Shredder-hammermill, Jacobson Machine Works.

No. 7675—Bulk delivery unit, Sudenga Industries.

No. 7676—Grain, seed dryer, A-C-E Supply & Equipment Co., Inc.

No. 7677—Automatic bagholder, Richardson Scale Co.

No. 7678—Products catalog, General American Transportation Corp.

No. 7679—Conveyor belts, Cambridge Wire Cloth Co.

more feedmen read

FEEDSTUFFS

than any other magazine in the field

Strong Scott

"OVER 20 YEARS OF TOP PERFORMANCE FROM OUR STRONG-SCOTT EQUIPMENT..."

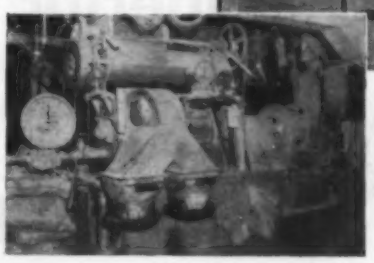
484 bushels of corn were unloaded in 15 minutes with the Strong-Scott Elevator Leg pictured here.

Pink Van Gorden, left, has no problem in keeping his customers satisfied as shown above. Pink and his brother Dick are carrying on the business started by their father.

says "Pink" Van Gorden, co-owner of H. H. Van Gorden & Sons, Neillsville, Wisconsin

This 2-ton Triple Action Mixer, after 20 years' use, is still going strong. It extends over the driveway for bulk discharge as well as inside sack-off discharge.

The recently installed Hammermill is part of a rebuilding job being done by contractor Arnold Schroeder.



Reliability of Strong Scott Equipment is well proven by the 25 years, trouble-free use of this Molasses Mixer.

"We have had a Strong-Scott Triple Action Mixer and a Molasses Mixer in operation for over 20 years without a nickle's worth of repairs or a single day's shutdown!" commented Pink. "That's one of the big reasons why, when we decided to purchase a hammermill, we picked the Strong-Scott mill. We wanted top performance plus dependability.

"Our Triple Action Mixer has been in use for over 20 years and we haven't changed even a drive belt," added Pink. The Strong-Scott Molasses Mixer has been in operation for over 25 years.

"Now, our new Strong-Scott Hammermill has been installed and we are very pleased," Pink stated. "It really does a good job and our customers are well satisfied."

EQUIPMENT DESIGNED FOR BETTER PROCESSING

The Strong Scott Mfg. Co.

451 Taft Street N. E.
Minneapolis 13, Minnesota

CLIP AND MAIL

PLEASE SEND INFORMATION ON:

☐ HAMMERMILL ☐ MOLASSES MIXER
☐ TRIPLE ACTION MIXER

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Serving Mills & Breeders For Over 30 Years

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Devold Vitamin A & D Feeding Oils
Devold Vitamin A Oils
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"Stabilized" From Can to Carloads
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Division of Chas. L. Huisking & Co., Inc.
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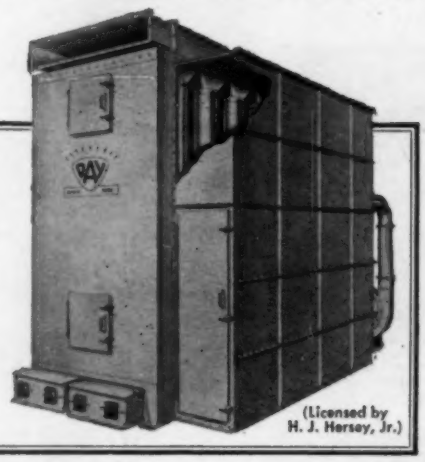
MALT SPROUTS
BREWERS GRAINS
DISTILLERS GRAINS
BEET PULP
AND 44 OTHER FEEDS

DAY
DUST CONTROL NEWS

Largest selling filter of its type in the world!

DAY "AC" Reverse Jet Dust Filter



Cutaway view of DAY "AC"— available housed or unhoused — for pressure or suction.

(Licensed by H. J. Hersey, Jr.)

Better Dust Control Systems Cost Less When They Include a DAY "AC" Reverse Jet Filter!

Less equipment needed

Filtering rates for a DAY "AC" are 10 to 20 cubic feet of air per square foot of filter media. These are about five times greater than old style filters. This means you get maximum filtration from a minimum filter investment. Because virtually 100% of the DAY "AC" is operating at all times, no money is wasted on intermittent or standby units. One DAY "AC" will filter and keep separated, dusts from up to 10 different sources!

Less maintenance

You know all equipment requires *normal* inspection and care. But you'll find many DAY filters have been on the job for 5, 6, 7 or even 8 years that have had no repairs whatsoever. In short, *the Day "AC" is built* to last! They have an "appetite" for work and a reputation for dependability and long life.

Less space needed

Because of smaller diameter felt filter tubes the DAY "AC" gives you a greater air handling capacity in less space. DAY "AC" filters occupy up to 50% less space — an important consideration for plants of any size!

99.99+% filtering efficiency

The real "pay off" on DAY "AC" filters is their ability to clean dust laden air with near perfect efficiency! Even "tough" materials such as carbon black or atomic energy materials are filtered with optimum effectiveness.

For additional information about the DAY "AC" reverse jet dust filter write toDAY for Bulletin F-75. It also contains pages of useful air engineering data.

The DAY Company

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The DAY SALES Company
811 Third Avenue N.E.
Minneapolis 13, Minnesota

MADE and SOLD in CANADA by
The DAY Company of Canada Limited
Rexdale (Toronto), Ontario, Canada
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Representatives in Principal Cities

EQUIPMENT ONLY OR A COMPLETE SYSTEM

OFFICERS-SPEAKERS—Shown are officers of the Carolina Grain & Feed Dealers Assn. and speakers at the group's summer meeting held at Myrtle Beach, S.C. During the meeting the North Carolina Grain & Feed Dealers Assn. voted to change its name to the Carolina Grain & Feed Dealers Assn., thereby including South Carolina grain and feed dealers, and making it a two-state association. Seated (left to right) are: Leroy Powers, association vice president; T. C. Flood, president, and O. W. Faison, secretary-treasurer. Speakers in the back row are (left to right): Dr. J. W. Kelly, North Carolina State College; Jimmy Youngblood, South Carolina Department of Agriculture; Bob Dahle, North Carolina State College; Robert C. Haldeman, U.S. Department of Agriculture; W. S. Farris, Purdue University; Henry L. Rasor, North Carolina Crop Reporting Service; E. W. Siedschlag, South Carolina chief grain inspector; T. Everett Nichols, North Carolina State College; Clifford Sims, South Carolina Crop Reporting Service; Dennis Ramsey, Ramsey Feed Co., Rosehill, N.C., and Arthur Laramie, Cargill, Inc., Norfolk, Va.

Illinois Egg Council Plans to Bolster State's Industry

By Special Correspondent

SPRINGFIELD, ILL. — An important step to lift the Illinois egg industry from practical obscurity from a financial standpoint to its proper status among other states was undertaken at the first annual meeting of the Illinois Egg Council at Springfield.

Some 100 producers, farmers, egg handlers and feed dealers from all parts of the state turned out for the one-day meeting to discuss the industry's problems, elect a slate of officers and plan for improvements. Experts from state and federal agricultural departments, university consultants and marketing specialists headed the discussions.

James Faulkner, Crystal Lake, Ill., a producer, was elected first president of the council, succeeding Henry Marlowe, Huntley, who served as acting president pending the first annual meeting.

Others named were: Merlin Klemm, Lincoln, first vice president; Jake Ramp, Polo, second vice president; Aubrey Harless, Shelbyville, treasur-

superior milk producer
BUFFALO®
corn gluten feed

Nutritionists recognize Buffalo as one of the best milk producing ingredients. It has been a standard in the feed industry for more than 50 years.
To get top milk production, make sure your feed rations include Buffalo Corn Gluten Feed.

CORN PRODUCTS SALES COMPANY
17 BATTERY PLACE, NEW YORK 4, N.Y.

IF

IF you keep records

IF you compare weight and feed efficiency of broilers based on Nichols 108 mothers with broilers based on White Rock mothers

IF you make split house tests under *commercial* conditions

IF you have your processor check the *extra* ½% to 1% of salable meat on a chilled yield basis

YOU'LL JOIN THE SWING TO BROILERS BASED ON NICHOLS 108S.

We'll gladly help you to set up records, comparisons, tests so you can prove the facts for yourself. Ask one of our representatives or contact us direct.

RESEARCH MAKES THEM BETTER
NICHOLS

Nichols Incorporated

Exeter, New Hampshire

er, and Scott Hinners, Carbondale, secretary.

New Inspection Program

Immediate planned activity of the council will be to assist and implement Illinois' new inspection program in connection with the state's new egg law which went into effect on July 1. Also planned is an education program aimed at a more uniform interpretation of present standards in the egg industry, both on a national and state level.

Appearing on the one-day program were: Stillman J. Stanard, state director of agriculture; Verne Steckley, Kendallville, Ind., past president of the American Poultry & Hatchery Federation; Ron Meyer, representing the DeKalb Agricultural Assn., Sycamore; Sam Ridlen, educational director of the council and a professor in animal science at the University of Illinois; Robert A. Dorsett, acting chief of the grading branch, poultry division, U.S. Department of Agriculture; James Roush, assistant professor of agricultural economics, University of Illinois, and J. Robert Harris, Illinois marketing specialist, Springfield.

Presiding at the two sessions were Harry Fulkerson, Illinois superintendent of markets, and Clarence Ems, superintendent of the division of poultry husbandry, Illinois State Department of Agriculture.

Comments from discussion leaders included:

Mr. Stanard: "Obtaining obedience to the new Illinois egg law will depend on a complete inspection by the markets division. We have found that where inspections are carried out thoroughly, the violations are reduced. The more frequent the inspection, the fewer the prosecutions.".

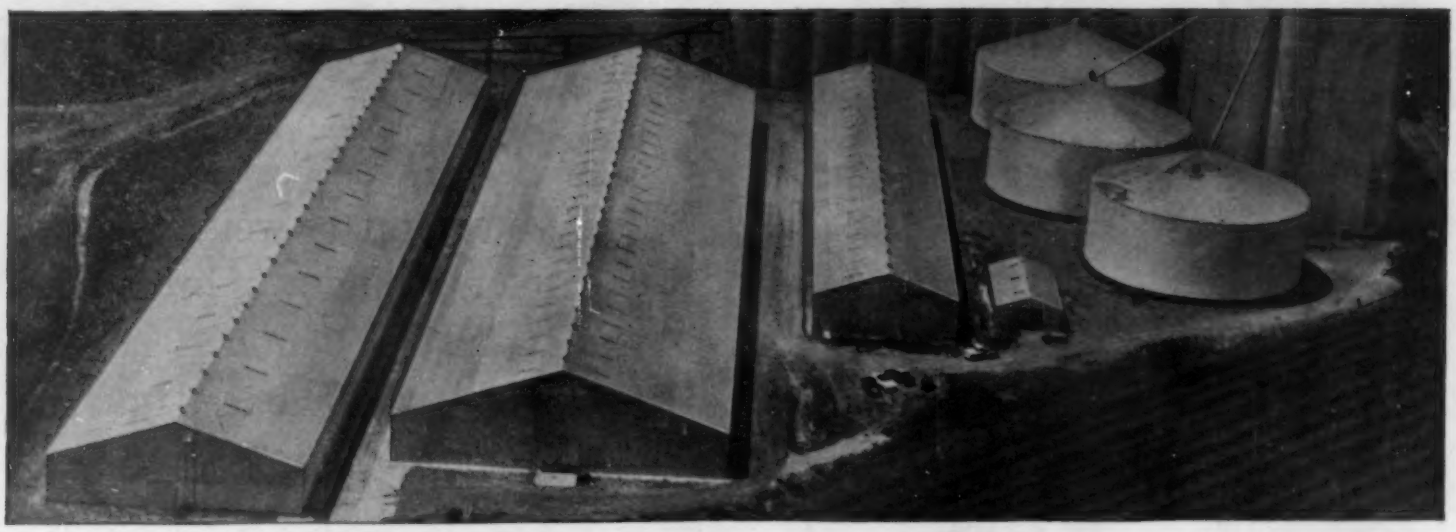
Mr. Stanard also cautioned against "legislation for everything" without careful analysis. Some legislation, he said, can put people out of business.

"Our new egg law will finally make the Illinois egg the equal to any in America. We do not wish to produce any commodity in Illinois that cannot meet the best in the nation," he said.

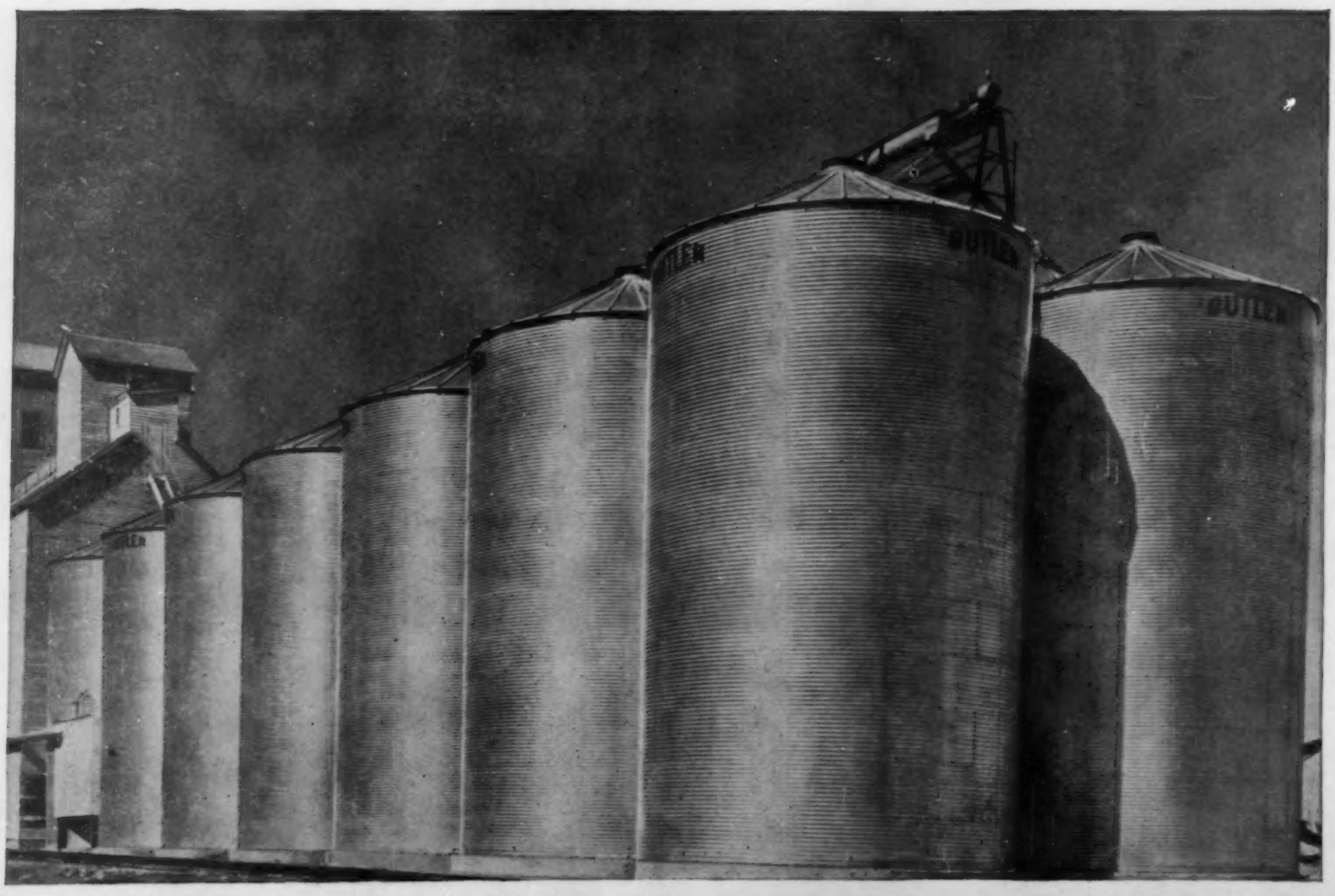
Mr. Dorsett: "A new shell egg grading program has been given the green light by USDA and is to be known as the 'Fresh Fancy Quality' grade. It calls for grading eggs on a 'breakout case basis' rather than on an individual egg basis."

Mr. Dorsett said eggs will be graded according to Haugh units, which is a numerical value used to classify eggs according to the height of the albumen in relation to the egg weight. Unit values range from 0 to 110. Top quality eggs score from 72 to about 100 Haugh units while "C" quality eggs range from 0 to 30.

Under the new inspection program



It takes a lot of know-how to provide storage structures



USDA graders will select samples for breakout tests from each flock once a week as eggs arrive at packing plants. If a flock is to remain on the program, an average of 72 units is required. Only five or 10 eggs will be tested for the weekly average from the flock. The sample, he said, is sound when controlled conditions exist. Not more than one egg in any sample of 10 can measure below 55 Haugh units.

"At present there are several plants using this new approach to egg quality certification with a great deal of success," Mr. Dorsett said. "They are located in Pennsylvania, Ohio, Indiana, Missouri, Nebraska, Mississippi and Washington.

"This program could very easily strengthen consumer confidence in the word 'fresh' and I think that most egg salesmen believe this word is potent in egg merchandising. It is difficult to measure freshness, but since the great majority of fresh new-laid eggs have a thick albumen and a firm upstanding yolk, it follows that this approach, along with rapid marketing, should give new meaning to the word 'fresh'."

Mr. Faulkner, a producer with 15,000 birds: "We are putting everything we have in the egg business because we believe in the egg business. At first we thought the answer was to be big, but are not so sure now. We believe we can produce economi-

Minnesota Linseed Meal

Manufacturers and dealers everywhere use Minnesota Brand meal, pellets or grits. *Extra protein* sharpens appetites, boosts production. Wire, write or phone for latest quotes.

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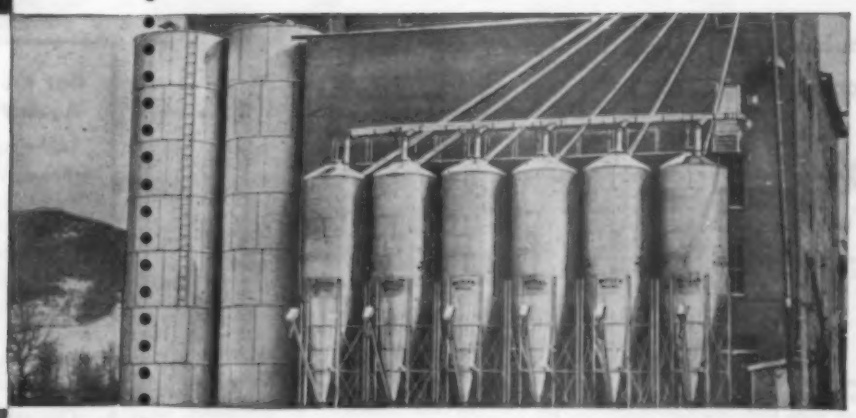

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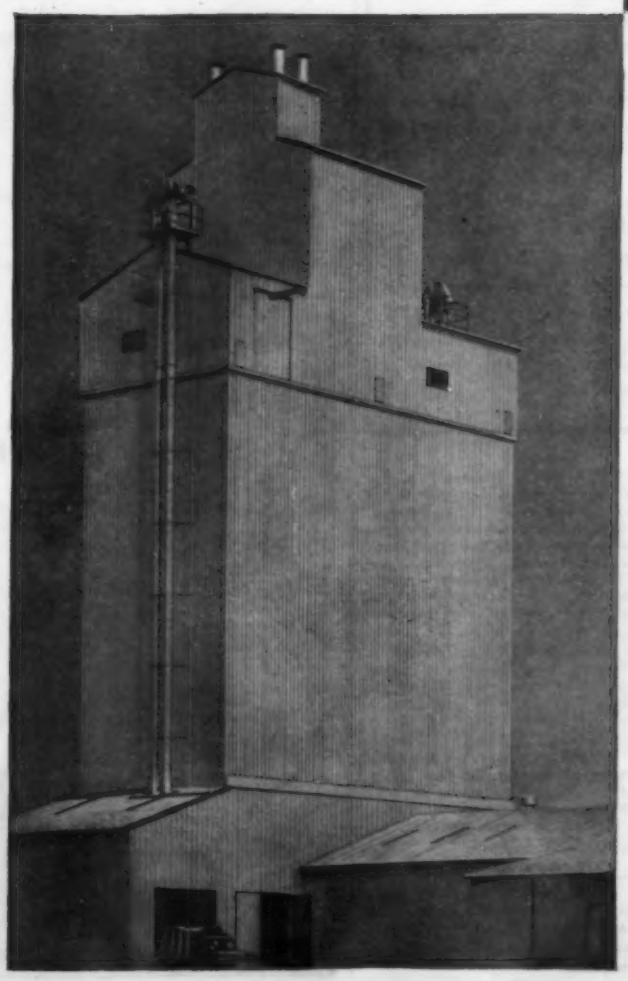

and Butler's got it!

Big storage is the most profitable way to handle grain or feed. But, providing safe and efficient structures for big storage is not a simple thing. It takes specialized knowledge of grain and feed pressures, expansion factors, handling techniques, metal fabrication and installation of facilities.

Butler and the nationwide network of Butler storage experts have provided the grain and feed industry with big, safe structures for years. From this experience, they have developed the knowledge and techniques needed to solve special problems of big storage.

That's why grain and feed men turn to Butler when they think in terms of a major investment. You, too, can take advantage of Butler's experience, Butler's knowledge... use it to build big, safe, profitable storage.

Get full details today. Write for the name of your nearest Butler Builder or Authorized Butler Contractor. He can provide flat or vertical Butler storage that will best fit your land, volume and financial requirements—the lowest-cost safe storage you can buy.

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STONEMO GRANITE GRIT — CALF MANNA
NOPCO FEED SUPPLEMENTS
PROTAMONE — STIMULAC
PILOT SECOND CLEAR FLOUR

INQUIRIES APPRECIATED

cally and do our marketing through dairies and restaurants. Our problem is in cracked eggs and small eggs."

Mr. Ramp, an egg buyer at Polo, Ill.: "Lots of turmoil in the industry. We are attempting to go to a quality-control program. Small flocks are on the way out. Illinois is now an importer of eggs. Producers must become stable and must have a reasonable volume of high quality eggs to produce economically. Producers must confide in the marketmen, and the packers must become at least as efficient as the producer.

"A thorn in our side is: there are too many standards for a Grade A egg. There is a need for uniformity, and if we raise our standards, we can dominate the Chicago market."

DIVIDEND DECLARED

ST. LOUIS—The board of directors of Ralston Purina Co. has declared a quarterly dividend of 30¢ a share on common stock, payable Dec. 11, 1959, to shareholders of record on Nov. 20, 1959.

Mama: "Let's buy Junior a bicycle."

Papa: "Do you think it will improve his behavior?"

Mama: "No, but it will spread his meanness over a wider area."

◆ ◆ ◆

Daffinition: PEDESTRIAN: A husband who didn't think the family had any need for two cars.

◆ ◆ ◆

A free-advice-seeking woman asked a farmer what would be good to plant in a spot that gets very little rain due to overhanging eaves, has too much late afternoon sun, has clay soil and is on a rocky ledge.

"Lady," he answered, "how about a nice flagpole?"

◆ ◆ ◆

A young man took his city-bred girl friend to a night club in Las Vegas, a place decorated in cowboy style. After a while the girl excused herself to go to the powder room. She returned a moment later, her countenance a blushing red. "Ted," she said, "you'll have to help me. Am I a heifer or a steer?"

◆ ◆ ◆

"Why haven't you returned your report card, Johnny?" the angry teacher asked.

"I can't get it back," the boy answered. "You gave me three A's, and they're still mailing it to the relatives."

◆ ◆ ◆

Wonder if the telephone company heard about one of its operators who warned a caller that his three minutes were up with: "Sir, your time has come."

◆ ◆ ◆

"Is it raining outside?" asked a diner of a waiter.

"Sorry, sir," sniffed the man, "but I'm not your waiter."

◆ ◆ ◆

He: Let's get married.
She: All right.
(Long silence.)
She: Why don't you say something?
He: I've said too much already.

(Advertisement)

THE INSIDE STORY ON . . .

Why Newcastle Disease Losses Are Still Hurting the Industry

Thousands of Broilers Die Needlessly From Vaccination 'Breaks' With Weak Vaccines

DESPITE the fact that vaccination against Newcastle Disease has become a standard part of virtually every poultry operation in the country—and has been for several years—this disease still remains one of the greatest causes of morbidity and mortality with which the industry has to deal. Puzzled poultrymen find it difficult to understand why their flocks begin to suffer outbreaks from Newcastle Disease especially when they have vaccinated faithfully in accordance with directions.

Most of them realize that the mass vaccination of birds is not as uniformly effective as when birds are individually treated. But even allowing for whatever shortcomings may exist with the mass method of vaccination, they find it difficult to understand how a high proportion of a flock can come down with a virulent form of Newcastle Disease. They are justified in asking blunt questions—and deserve something more than glib answers.

The confusion stems from the "hidden humbug" that surrounds vaccines. These little known facts about vaccines and vaccinating are working an annual economic hardship on the poultry industry that is impossible to calculate. The tragic aspect of the situation is that, barring human error and negligence, these flock losses need not have occurred.

Here are the facts that will help you halt the ever-present threat of Newcastle Disease to your flocks.

Water Vaccination Best Mass Vaccination Method

There is a wealth of scientific and practical evidence that the drinking water system of vaccination is the best of the mass methods. It is a tremendous labor saver. Furthermore, it is not possible to overdose with the drinking water method.

This last does not hold true with the dust or spray methods of mass vaccination. With water vaccination, the protective infection is set up in the upper respiratory tract. With sprays and dusts, infection is produced in both the upper and lower tracts. Over-dosage can occur when vaccines are inhaled deep into the lower respiratory tract and lungs, and possibly into the air sacs. The result can be vaccination mortality, especially if the birds treated are of a young age.

Important Differences in Vaccines

Although water vaccination has been established as the best mass method of treatment, "breaks" sometimes occur.

These "breaks" are almost invariably linked with attempts to combine the excellent water method of vaccination with underpowered vaccines.

Two strains of virus are used in the manufacture of commercial Newcastle vaccines—the B¹ strain and the LaSota strain. The LaSota strain is used exclusively by Vineland Poultry Laboratories and is called the VIPOL 717 strain. All other manufacturers use the B¹ strain.

The B¹ strain can immunize through the drinking water only if the treated water is consumed quickly and if the vaccine has a high enough potency to stand dilution. Birds not drinking for some time after the water has been treated with vaccine will consume water in which the virus has lost its immunizing power.

You Need High Blood Titres

The best indicator of generalized immunity, high blood titres produced within the birds, cannot be demonstrated in all birds treated with the B¹ strain of virus. The superiority of VIPOL 717 (LaSota strain) in producing consistently higher blood titres has been documented by research in one of our leading state universities.*

The initial test showed an HI titre for the LaSota strain (VIPOL 717) five times greater than for the B¹ strain. A second trial verified the 5-to-1 superiority in titre rating.

Only one mild strain of Newcastle vaccine consistently produces the high blood titres and durable immunity necessary to fully protect flocks right up to market age. That strain is VIPOL 717 (LaSota strain), manufactured exclusively by Vineland Poultry Laboratories.

Retains Power to Immunize

VIPOL 717 vaccine (LaSota strain) retains its power to immunize for periods as long as 24 hours and more after it has been added to the drinking water. Because of the original high titre of the virus in the vaccine itself, it can stand dilutions in the drinking water even far beyond recommended levels.

VIPOL 717 (LaSota strain) Newcastle vaccine has an unlimited infecting potential that continues through the vaccination reaction period and insures the immunity of a maximum number of susceptible birds. In other words, this upper respiratory tract vaccination "take" with VIPOL 717 is conducive to a natural passage between birds that backs up the drinking water action.

Need for Revaccination at Minimum

Revaccinations on young chicks with VIPOL 717 are reduced to a minimum. They are necessary only if the birds are carrying parental immunity at the time of the first vaccination.

On the other hand, revaccinations with the B¹ strain are necessary, simply because this strain of virus lacks infecting potential among those susceptible birds that do not receive a dose of vaccine at the time of vaccination.

Get the Facts on Protection Against Newcastle Disease!

This article is the sixth in a series outlining the fundamental scientific facts on the prevention of Newcastle disease. Each has featured this Vineland Poultry Laboratories' challenge to the industry:

"The VIPOL 717 strain of Newcastle disease vaccine produces a higher titre and a more durable immunity than the B¹ strain."

This statement has not received a single contradiction from any vaccine manufacturer, pathologist, breeder, hatcheryman or grower. The facts which document the performance of VIPOL 717, implicit in this statement, have been featured in each of our national ads. Not one single point in these articles has ever been challenged.

Newcastle disease is still a threat. It takes vigilance and protection in depth—the protection of VIPOL 717 Newcastle disease vaccine—to keep your flocks safe from the ravages of this disease.

VIPOL 717 Newcastle Disease Vaccine can be used for revaccination on flocks previously vaccinated with the B¹ Strain. One of the nation's foremost state colleges specifically recommends this procedure, advising all poultrymen in their state to use VIPOL 717 Newcastle Disease Vaccine in the water as the last vaccination at housing time regardless of any previous vaccinations.

Remember that the LaSota Strain is used exclusively by Vineland Poultry Laboratories. This means that only VIPOL 717 provides the full measure of protection conferred by this powerful, yet mild, strain of virus.

See your nearest dealer or Vineland State distributor, or contact Vineland Poultry Laboratories, Vineland, N. J., or 4068 Broadway Place, Los Angeles 37, Calif., for VIPOL 717 or for more detailed information.

*The name of the scientific publication and the date of issue in which the report on these experiments appeared will be supplied upon request.

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I was sickly ...rundown until I started on feeds with SUCRO-FLAVOR
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FLAVOR CORPORATION OF AMERICA
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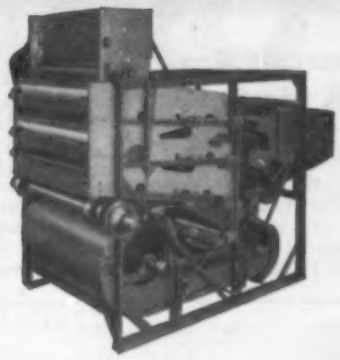
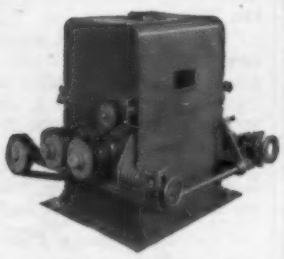
HORIZONTAL MIXER • MIXALL and SANIMIX Horizontal Mixers — 27 models, standard, heavy-duty and sanitary plus custom-built.

VERTICAL MIXER • Capacities from ½ to 4 tons and more per batch.

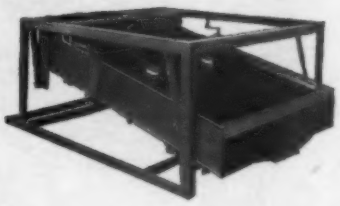
TWIN SHOE CLEANER • Over 40 SIZES from which to select in Twin Shoe or in 3 & 4 screen, 2 air Standard and Special Models. Capacities to 6000 bu/hr.



BARBEAU JR. CLEANER • Complete compact system. Ideal for small operators.



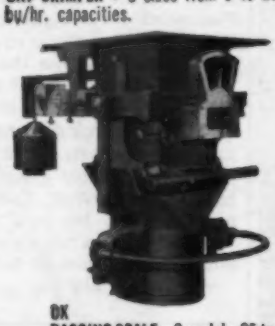
OAT CRIMPER • 5 sizes from 5 to 200 bu/hr. capacities.



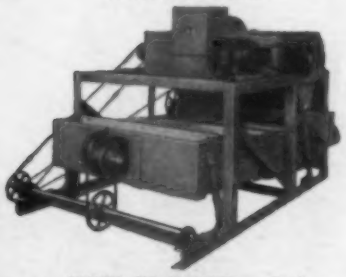
SNAPPY SHAKER • 7 sizes in choice of 1 or 2 deck models.

DUPLEX MIXER • Choice of sizes, to meet your capacity requirements.

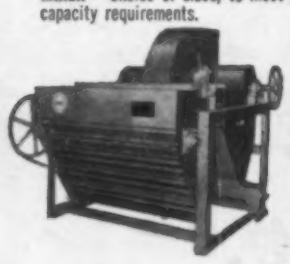
RECEIVING SCALPER • 11 sizes, 1 & 2 screen models. Wide range of capacities.



OK BAGGING SCALE • 2 models, 25 to 200 lbs.



SNAPPY AIR FINISHER • 7 sizes— Capacities to 20 tons/hr.



ASPIRATOR • 12" to 48" width cones for various capacities.

ALL STEEL REEL • Variety of models to individual requirements.

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Surveys show your investment in Eureka equipment reduces production and operating costs...improves your competitive position.

Howes produces a complete line of units to equip your entire operation. Each unit is expertly designed and precisely built to deliver efficient, durable service alone or in combination with other Eureka units.

Your requirements are most closely matched from the wide selection of items for each process. A wider range of standard models. Special units custom built to exact specifications. All are competitively priced. Experienced assistance is available. Also, free bulletins and catalogs. Your request for information or quotes will receive prompt, personal attention.

NEEDLE SCREEN SEPARATOR • Sectional View — 4 sizes each double or single Stream to 500 bu/hr. capacity.

OAT CLIPPER • 7 models in 9 sizes for all capacities.

CONVEYING EQUIPMENT • Bucket elevators, screw, belt and board conveyors
LABORATORY EQUIPMENT • A complete line of test equipment

S. HOWES CO., INC.
Silver Creek, N. Y.
MANUFACTURING ENGINEERS

NO OTHER EQUIPMENT DOES SO MUCH... SO LONG... FOR SO LITTLE

JOE BROOKS

BY AL P. NELSON

Promotions Are A Must

When Joe Brooks' employees got to the feed mill that night for the sales training meeting, it was very hot outside. The men, nine all told, were a little full of steak, because Joe always treated them to a steak dinner at the Hotel Manitou, with all the trimmings. He was not one to stint on this, but he expected the men to really learn something at the sales meetings and to come up with ideas.

And they usually did.

Attending were Ed Eggers and his men from the Endeavor mill branch, and everyone from Joe's Hansen's Creek mill was there, except Smiley and Pop who were on vacation.

Joe sat on a counter, while his men sat on folding chairs. Now the feed dealer began to smile in a friendly way.

"Boys," he said, "I've been in the feed business long enough to have seen many changes, most of them for the better. Feed dealers as a rule are getting to be better merchandisers. They've got better machinery and are turning out a better feed grinding and mixing job. They are studying costs, and man, how salesrooms have perked up in the last 20 years."

"And employees are workin' harder," quipped Milt Peters, he of the alert mind and sometimes saucy tone.

"I don't know about that," Joe said. "We used to have some long work weeks. But the fact is, the alert feed dealer, in addition to coming up with good products, must also come up with some good merchandising promotions."

"That's all we're doin' around here is promotin'," put in Art Morton, an Endeavor branch employee.

"And it pays," Joe said. "Believe me we're like the farmer who buys fertilizer. For every dollar he invests he can get up to $3 and sometimes more for that dollar in bigger crops. In this business when we spend money for good advertising and sales promotion we can expect to get more sales and consequently more profit."

"I like more sales," Windy Kramer, the routeman, said. "Profit sharing has added many a dollar to my pay checks."

"Mine, too," said Butterball Barlow.

Joe smiled. For years he had been hammering at his men that more sales at a profit, would put extra dollars on their pay checks. Sales were their responsibility as well as his.

"Right now we are going to try a new promotion," Joe said, "and we are going to run it once every three months—two days at a time. I hope you like it, and I hope it brings in more sales."

"I don't like the way you say it," said Milt, suspiciously. "Sounds like we have to work real hard."

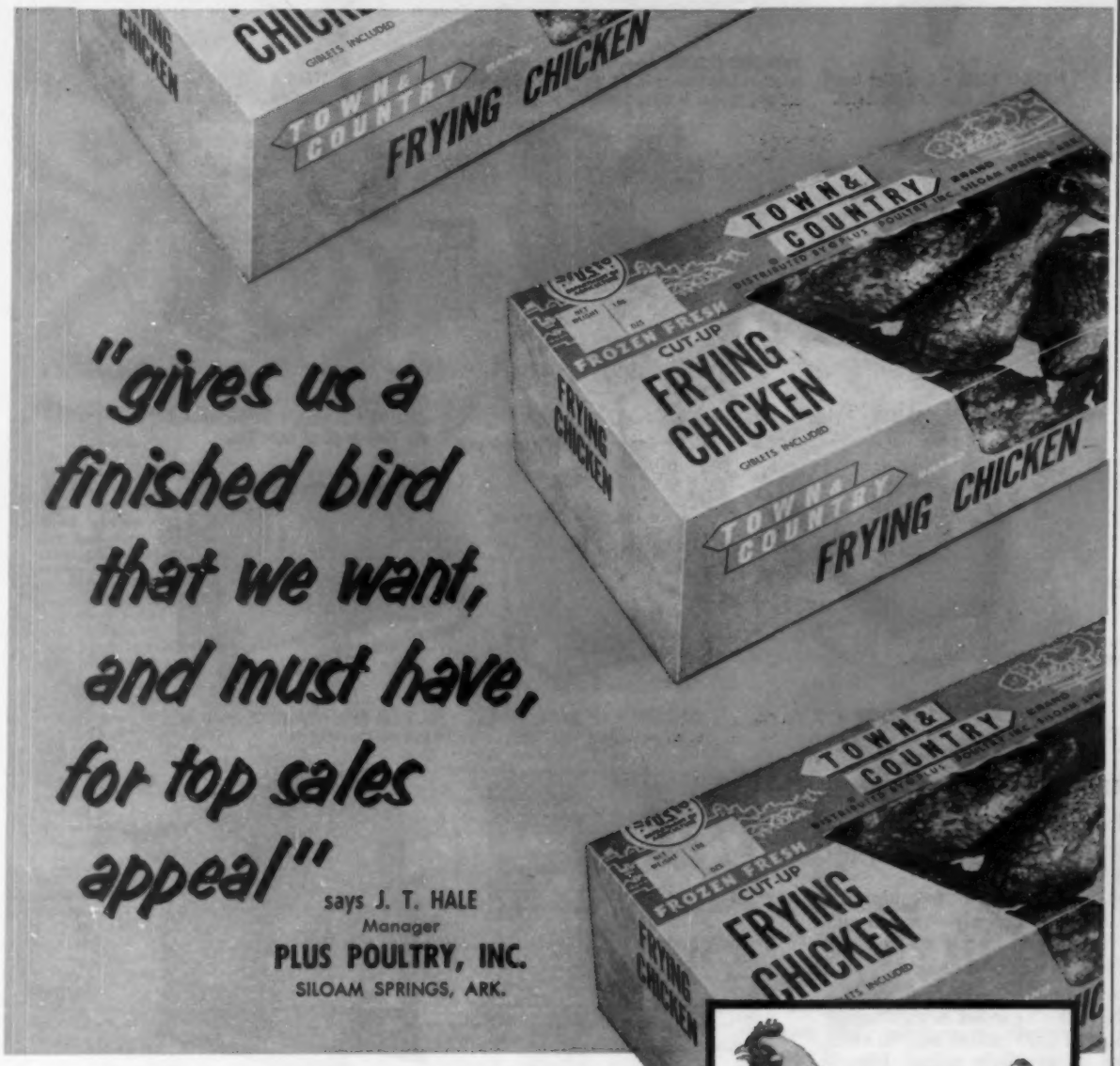
Joe Has a Plan

Joe smiled. "We'll see. Now here it is: We are going to stage an Old Fashioned Days Sale for two days in a row, every three months. That'll make four sales like that within one year. At the end of that time we'll see whether it should be continued."

"What's it going to be like, Joe?" asked Ed Eggers.

Joe smiled and looked at Butterball Barlow. "Well, Butterball gave me the idea. He saw a promotion while he was on his vacation in Iowa, and we'll use part of that."

"Hey, why did you go to Iowa on



"gives us a finished bird that we want, and must have, for top sales appeal"

says J. T. HALE
Manager
PLUS POULTRY, INC.
SILOAM SPRINGS, ARK.

"The reason we like the JB-1", continues J. T. Hale, "is because of the full feathering of the broiler chicks. And, of course, because of the white bird. It makes our processing much easier. The conformation of the finished broiler is certainly a desirable quality from the JB-1. It tends to give us a finished bird that we want and must have for top sales appeal."

Martin's CROSS-BRED JB-1 VIGOR

Bred and Developed by
BOWMAN-MARTIN DEVELOPMENTAL BREEDING FARMS
an affiliate of Martin's Hatchery Poultry Farms, Inc.
2823 Columbia Avenue, Lancaster, Pa. • Phone Lancaster EXpress 2-2164

No longer need the broiler industry sacrifice egg production and hatchability to get growth rate, feed conversion and dressing qualities . . . or vice versa. Flock owner, hatcheryman, grower and processor all find the JB-1 best for their phase of broiler production.

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More profit on feed when you mix your own brand!

BROWER Whirlwind FEED MIXER

Earn up to $1.50 profit per bag by mixing your own brand of feed with the BROWER MIXER . . . the extra profits soon pay for it! WHIRLS the ingredients instead of just tumbling them . . . mixes a perfect blend in about 10 minutes . . . fast, economical! Built for years of trouble-free service. Five sizes. World's Largest Selling Mixer!

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Write for FREE CATALOG

Dr. Salsbury's Laboratories—the Scientific Approach to Poultry Health Problems

Dr. SALSBURY'S 3-NITRO® Powder

can help your feeds boost egg production— and profits!

SCORES HIGHEST ON THE PROFIT TEST

Egg producers are pretty well agreed that 3-NITRO* is the arsenical of choice—it **reduces flock depletion, increases feed efficiency** and **egg production.** Many have also learned that it scores highest on the "profit test." That is, they make more money with 3-NITRO in their layer rations. Records indicate that 3-NITRO birds need ¼ lb. *less feed* per dozen eggs. This means greater efficiency—and greater customer satisfaction—with layer rations containing 3-NITRO. Used at the rate of only 1 lb. per ton of all-mash ration, 3-NITRO adds important benefits for only pennies per layer per year. That's why poultrymen who use it say, "*No other feed ingredient does so much—and costs so little—as 3-NITRO.*"

**Contains 3-Nitro-4-Hydroxyphenylarsonic Acid*

"5% MORE EGGS, DUE TO 3-NITRO"

Here's what a prominent Southeastern egg producer (name on request) says about 3-NITRO: "We are now getting at least 5% more eggs, due to Dr. Salsbury's 3-NITRO in the ration. Also, we observe a lower mortality rate and more alert, better-looking birds."

These growers, like thousands of others, have discovered that 3-NITRO scores highest where it counts most: **On the profit side of their record book.** That's the test that really counts. And that's why you'll want 3-NITRO in all your layer feeds. Whether they've got 500 hens or 100,000, 3-NITRO can build bigger egg profits for your customers, too!

Because of the continuing importance of good flock husbandry, current Dr. Salsbury consumer advertisements carry this message: PROPER MEDICATION IS ONLY ONE PART OF GOOD FLOCK MANAGEMENT. FOR BEST RESULTS, PRACTICE SOUND FEEDING, HOUSING, SANITATION AND PEST CONTROL.

Dr. SALSBURY'S LABORATORIES
Charles City, Iowa

NATIONWIDE SERVICE TO THE FEED INDUSTRY

vacation?" asked Milt Peters. "You got a girl over at Beetown in Wisconsin. Did you break up with her?"

Butterball's face got red. "S-she got poison ivy, and I had my vacation period all set. So instead of stickin' around town, I had to go somewhere. I drove to Iowa. And I liked it."

"This Old Fashioned Sale," Joe said, "will feature up to ten special bargains, mostly in slow moving merchandise or on odd lot stuff we have around. It will be designed to build store traffic. And that increased traffic will be exposed to lots of other displays and to our improved salesmanship, I hope."

"Think such a sale will pull, Joe? Will it have punch?" Milt Peters asked.

Joe grinned. "Well, I think so. This sale that Butterball saw in Anamosa, Iowa, was put on there during their Ridiculous Day celebration. Every merchant was dressed in a crazy costume and the customers like it. Now all of us are going to be dressed in old fashioned costumes, not necessarily crazy. But we want to revise the spirit of the old days from 1900 to 1915."

"You mean, we gotta grow mustaches for that event, let our hair grow long, wear derbies, peg top pants and all that?" asked Milt incredulously.

"Well, I'll leave some of that attire up to your imagination," Joe said with a smile. "Rummage through the attic and get out all the old clothes your ancestors wore. You ought to come up with interesting costumes. Folks will come to the store on Old Fashioned Days just to see how we're dressed and they'll josh us about it. We don't care, so long as we get more sales."

"I haven't a home or an attic," said Milt. Then he brightened. "But maybe my redheads will go into their attics with me and prowl around. Boy, I like explorin' in the dark."

"We'll run old fashioned town and country pictures in our Old Fashioned Days advertising," Joe said. "And we'll invite farmers to bring in 1900 to 1915 pictures for us to display in our salesroom. We'll give a $1.50 merchandise credit for every one we accept for such an exhibit. Farmers can have them back later."

"Say, that's quite an idea," Ed Eggers said. "People always think happily about the good old days. I'll bet this sale will draw them, especially if we have good values."

"I'd like to see us have an old fashioned delivery service," suggested Mike Rogan, an Endeavor employee. "Have a horse and buggy EXPRESS delivery service, just to deliver small orders around town. Maybe with a bearded, mustached driver—me, for instance. That would attract attention."

"And probably get a picture spot on the front page of the newspaper," Joe suggested. "I want all of you to turn in ideas to me during the next week on what you think we can do to make this a real interesting sale. There'll be a cracker barrel, full of crackers. We want more interesting ideas. Let's make this a sale customers will look forward to four times a year. And may our sales increase."

DIE LIFE

(Continued from page 16)

are divided into three major classifications:

(1) On the poorest performing dies, with standard polish, rates are very low regardless of the fatty acid level.

(2) On intermediate performing dies, also with the standard polish, there is wide variation in performance, even on the same fat. The only differences found favor low fatty acid fats (10-20% free fatty acid) over high fatty acid fats (70-80% free fatty acid). There were no real differences between fats in the 10-20% range and those in the 20-70% range.

(3) On the best performing dies, with improved surface polish, rates are very high. On these dies, there is no difference in performance regardless of the fatty acid level.

E. Surface finish of extrusion die holes is found to be the most important factor affecting pellet production rates and die life.

F. Improved die surface finish and subsequent gains in production rates and die life can be obtained with:

(1) Better abrasive polishes. Two types were evaluated in pilot and production mills.

(2) Durable metal platings or coatings. A chemically deposited nickel plating was found effective for reclaiming poorly performing dies in pilot and production mills.

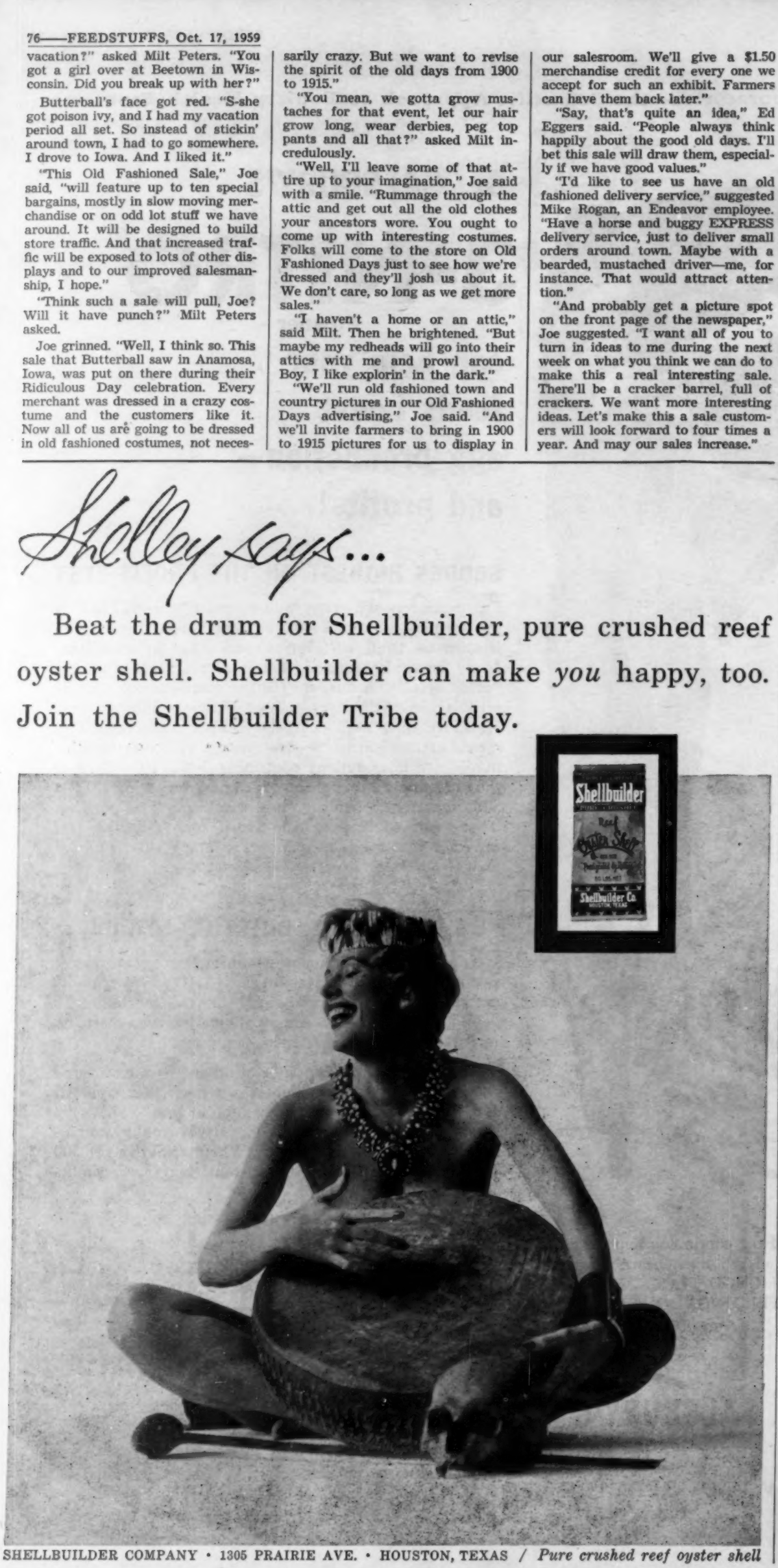
Time has not yet permitted a complete exploration of the plating discovery, but the results to date may create enough interest that others will want to study it. It seems likely that it will have significant meaning to the feed industry.

ACKNOWLEDGEMENTS — A number of companies and individuals cooperated in helping to make this study possible. We wish to acknowledge especially:

Buckeye Cellulose Corp., a wholly-owned Procter & Gamble subsidiary, for the use of its facilities for the pilot plant installation and to M. Holmes Fowler and James H. Tankersley of the oil mill technical division for their advice and assistance in the operation of the pilot plant and

Shelley says...

Beat the drum for Shellbuilder, pure crushed reef oyster shell. Shellbuilder can make *you* happy, too. Join the Shellbuilder Tribe today.



SHELLBUILDER COMPANY • 1305 PRAIRIE AVE. • HOUSTON, TEXAS / *Pure crushed reef oyster shell*

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3 NEW 1-DAY FREE FEEDING SAMPLE WINS NEW SALES!

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ESTABLISHED IN 1906
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last year over 125 firms received greater merchandising impact from their multiwalls thru UNION-CAMP'S

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Through the 5-Star Plan, UNION-CAMP artists and designers may help you achieve greater merchandising impact from your multiwalls. Their services are free.

Besides bag design this comprehensive packaging service offers you major money-saving improvements in bag construction, specifications control, packaging machinery and materials handling.

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"HAMMOND" ELEVATOR BUCKET
Bolts and Washers

"Hammond" Elevator Bolts are made of controlled analysis, stress-relieved, cold-heading steel to insure dependable wearing quality and uniformity. Threads are longer than standard. Heads are of large diameter and the nuts are close-fitting. Finished in rust-resisting lustrous finish.

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For All Cattle, Hogs, Sheep, Chickens, Turkeys

Better Health, Growth and Production - Greater feed efficiency - Lower Feed cost

Yeast Culture values proven by state college tests

write . . . DIAMOND V MILLS, INC. • CEDAR RAPIDS, IOWA

to Dr. Philip D. Aines of the same division for his help in evaluating the results.

McMillen Feed Mills Division, Central Soya Co., where the production mill tests were run and to Merl A. Williams and Paul C. Sharpe of the technical division who gave helpful advice and assistance in both pilot and production mill tests.

Cameron B. Grant, Grant Machine & Manufacturing Co., Grand Junction, Colo., who developed one of the special abrasive polishing techniques and cooperated in the planning of the work on plated dies.

Kanigen Division, General American Transportation Co., Chicago, who plated the test dies with Kanigen, the trademark for the company's patented nickel alloy chemical plating.

California Pellet Mill Co. for its assistance in setting up and for its suggestions on operating the pilot plant.

Sprout, Waldron & Co., who supplied various metal specimens, including some of those used in the laboratory corrosion studies, and who offered constructive suggestions concerning the production mill tests.

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3% More Pigs On Farms in Canada

WINNIPEG — The number of pigs on Canada's farms Sept. 1 this year was 7,055,000, 3% more than last year's corresponding total of 6,849,000, according to the Dominion Bureau of Statistics. Pigs on farms in eastern Canada increased 11% to 3,780,000 head from 3,414,000 a year ago, but numbers on farms in western Canada decreased 5% to 3,275,000 head from 3,435,000.

Summer litters (farrowings from June 1 to Aug. 31) declined 7% to 312,000 from 334,000 a year ago, the total for the East falling to 172,400 from 184,200 and for the West to 139,600 from 150,000. Estimated farrowings in the fall (Sept. 1-Nov. 30) are placed at 308,500, up 1% from last year's total of 306,200. Fall farrowings in eastern Canada are expected to rise 1% to 180,000 from 178,900 and in western Canada also 1% to 128,500 from 127,300.

Information obtained from the June 1 survey indicated that farrowings June 1-Nov. 30 would total 651,000 head, or 2% more than in the like period of 1958. The current survey indicates some modification of this total, placing the six-month total at 620,000 head.

NEW IOWA ELEVATOR

WEST UNION, IOWA—An elevator and mill being built by the West Union Cooperative Co. is nearly completed. A 25 x 33-ft. concrete tower, 74 ft. high, is being poured by the slip-form method.

Your protection assured by our laboratory control

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Rigid laboratory control is not just a hobby! Nor is it a luxury. It is an absolute necessity for the feed manufacturer who wants to be certain that his feeds contain what his nutritionist says they should contain.

Lime Crest trace-mineral pre-mixes are made under rigid laboratory control. You can use them with full assurance that they will always put into your feeds what they are supposed to put there. *You* are protected by *our* laboratory control . . . and our research.

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Larry McBride Glenn Conger

Hot Spot Detector, Inc., Names Sales Engineers

DES MOINES — The appointment of four new sales engineers by Hot Spot Detector, Inc., Des Moines, has been announced by R. L. Wilson, sales manager.

Richard Grant

Larry McBride will assist Hot Spot Detector's northern Kansas representative, Jerry Gray, and will cover the western Kansas and eastern Colorado portion of this territory. Mr. McBride was formerly with Sampson Construction Co. in Salina, Kansas.

Glenn Conger will take over the Minneapolis-Duluth territory left vacant by the promotion of Bruce Fulenwider to assistant sales manager. Mr. Conger comes to Hot Spot Detector from the Minneapolis-Honeywell Regulator Co. He has had more than nine years of electronic experience, and holds an electrical engineering degree from the University of Oklahoma.

Richard Grant has returned to Hot Spot Detector, after a two-year leave of absence, to take over the eastern Iowa and western Illinois territory.

Robert Hill will represent Hot Spot Detector in the southern Illinois-Indiana area. He formerly was with the Rolfes Aeration firm. An Iowa resident, he attended the state University of Iowa.

Co-op Launches Quality Egg Marketing Plan

GULFPORT, MISS. — "Five Star Eggs" were introduced for the first time recently to the consuming public, via ads setting forth aims and purposes of the cooperative group producing them, and guaranteeing every egg on the retail market as "high quality."

Ernest Forrest, manager of Coastal Cooperative, said "Five Star Eggs" are now being distributed throughout the coastal area, which comprises Pass Christian, Long Beach, Gulfport, Mississippi City and Biloxi.

Coastal Cooperative, in conjunction with the Mississippi Federated Cooperatives, is now participating fully in the organization's egg producing program which is set up in 26 counties, with one million laying hens under contract.

Harrison County agent, F. P. Amsler, said, "The production of quality eggs entails a great deal more than finding them in a nest somewhere. Coastal's program involves the selection of hens bred for high interior egg qualities; the growing of strong healthy pullets and housing them in modern clean houses properly equipped so that eggs may be produced wholesome and clean, and feeding a ration that adds flavor and proper yolk color to an egg, as well as numbers of eggs.

"It involves the screening of many Mississippi farm families with the right kind of family life, thrift and aptitude to follow a supervised program of handling and production."

Eggs for the coastal marketing area are being graded at Hattiesburg, one of four MFC grading stations now in operation in the state.

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What you should know about oxidative deterioration of inedible animal fats

WHAT is oxidative deterioration?

Oxidative deterioration of animal fats is caused by oxygen in the air reacting with the unsaturated portion of the fat molecule. This reaction produces free peroxide radicals which, in turn, appear to trigger a lengthy chain reaction that results in formation of a variety of aldehydes, ketones and acids. Once started, the process cannot be reversed; if allowed to continue, it proceeds at an increasing rate.

WHY is it important to feed processors?

Oxidative deterioration, unless checked, rapidly makes its presence known in the form of rancidity. Nothing destroys the marketability of feeds so quickly as the pungent, tallowy odor and flavor characteristic of rancidity.

HOW can oxidative deterioration be controlled?

Oxidative deterioration can be controlled effectively with antioxidants. Incorporated by the renderer in the animal fats you buy, these chemical compounds retard oxidative deterioration by checking the rancidity-producing chain reaction referred to above. Inasmuch as the chain reaction cannot be reversed, it is essential that antioxidants be added as early as possible in the processing of the fat.

WHICH antioxidant is best?

While an antioxidant formulation containing BHA (butylated hydroxyanisole), citric acid and propylene glycol, such as Eastman Tenox R, is quite effective in stabilizing economically a wide variety of greases and tallows, no single antioxidant or combination of antioxidants can be relied upon to solve all fat stability problems.

The most effective and most economical formulation for any particular feed must take into account such factors as the initial stability of various fats produced in different localities at different times of the year, how they are processed, methods of distribution, length of storage and type of packaging.

Advice and assistance in selecting the best formulation for your specific requirements is available from the Eastman Food Laboratories.

WHERE are these antioxidants available?

All principal antioxidants in use today are available from Eastman, marketed under the trade name TENOX. These include BHA, BHT (butylated hydroxytoluene) and propyl gallate, alone or in solution formulations containing various combinations and ratios of these antioxidants, with or without a metal chelating agent. For more information, write to Eastman Chemical Products, Inc., subsidiary of Eastman Kodak Company, Kingsport, Tennessee.

Tenox Eastman antioxidants for animal fats

SALES OFFICES: Eastman Chemical Products, Inc., Kingsport, Tennessee; Atlanta; Chicago; Cincinnati; Cleveland; Detroit; Framingham, Massachusetts; Greensboro, N. C.; Houston; New York; St. Louis.
West Coast: Wilson Meyer Co., San Francisco; Denver; Los Angeles; Phoenix; Portland; Salt Lake City; Seattle.
Canada: P. N. Soden Co., Ltd., Montreal, P. Q.; Toronto, Ontario.

GFDNA Comments On Unpassed Bills

WASHINGTON—Of interest to the feed industry is a listing by the Grain & Feed Dealers National Assn. of proposed legislation that was not passed during the first session of the 86th Congress.

GFDNA explained in a recent news letter that since the 1959 session was the first for the 86th Congress, all bills and action on the bills remain alive until the end of the second session in 1960.

As an answer to numerous inquiries, GFDNA made these comments on various bills in its news letter:

"S.2521—Introduced by Sen. Milton Young (R., N.D.) would have extended the time within which credits, accruing to country warehousemen for delivering grain to Commodity Credit Corp. superior in quality to that called for, may be offset against subsequent deficiencies in the quality of grain delivered. Hearings were not held—no action taken.

"S.2014—After extensive hearings, the Senate committee on agriculture did not elect to report the controversial bill that would have granted cooperative organizations freedom from the antitrust laws.

"HR 7875—Introduced by Richard Simpson (R., Pa.) incorporated the treasury department's recommendation on cooperative taxation. The ways and means committee reported no legislation, but announced January hearings on cooperative taxation.

"S.2524—Relating to the powers of the states to impose net income taxes on income derived from interstate business passed the Congress. The legislation prevents a state or political subdivision from imposing net income taxes from income derived in interstate commerce if the only business activities were solicitation of orders and delivery of orders. The legislation authorized a study by the Congress on interstate taxation with proposals for legislation on or before July 1, 1962.

"Wage-Hour — The report of the Senate subcommittee on labor to raise the minimum wage to $1.25 hour and to include all employees affected by commerce was not considered by the full Senate committee on labor and welfare."

Georgia Egg Industry Gains New Corporation

CAIRO, GA. — A new corporation designed to give impetus to the egg industry in this extreme south Georgia area has been formed in Cairo and plans have been made to put in a large egg processing plant and daily cash market for eggs.

The corporation, formed by a group of south Florida egg people, plans to start operations about Jan. 1, 1960, and will try to buy up to 10,000 cases of eggs a week for both domestic and export outlets.

A spokesman for the company said the market will aggressively promote a program to quadruple the production of eggs in the immediate area. It will strive to serve an area within a radius of 60 miles of Cairo or larger.

The corporation, with an initial capitalization of $100,000, plans to export most of the small eggs through outlets already available and to supply quality eggs to most of the large cities along the Atlantic seaboard.

Valley Mills Names Territory Manager

VICKSBURG, MISS. — Thomas S. (Tom) Buercklin has been named territory manager for Valley Mills, according to W. C. Roberson, sales manager.

T. S. Buercklin

Mr. Buercklin will be headquartered in Gulfport, Miss., and will cover southeast Mississippi and southwest Alabama.

He was an animal husbandry major at Alabama Polytechnic College, Russellville, Ark., and was associated with Moorman Manufacturing Co., Quincy, Ill., prior to joining the Grade A Feed sales group.

McMillen Feed Mills Announces Promotions

FT. WAYNE, IND. — L. E. (Ed) White has been named territory manager in the feed sales division of McMillen Feed Mills, Ft. Wayne. He will cover southeastern Pennsylvania, all of Delaware and the eastern shore of Maryland.

Mr. White joined McMillen Feed Mills in 1950 as an assistant territory manager. He has been assistant to the northern division sales manager, assistant to the eastern division sales manager and assistant to the director of feed sales. He is a graduate of Illinois Wesleyan University.

Joe Hartman has been promoted from assistant territory manager in the eastern district to territory manager in the same district. He attended Pennsylvania State University, and joined the feed sales division in 1952.

Harold Altmansberger Joins Morris Grain

EVANSVILLE, IND. — The appointment of Harold C. Altmansberger as manager of grain merchandising has been announced by Robert Morris, president of Morris Grain Corp., Evansville. Mr. Altmansberger had been manager of purchases for Igleheart Brothers Co. for the last 22 years.

Morris Grain Corp. operates elevators in Evansville, Ind., and Crossville, Grayville, and Epworth, Ill. In addition to its evelators, the firm operates a fleet of 22 Ohio River barges and one towboat.

Wenger

PACKAGED UNIT

Pellet Mills

Complete Integration of Every Pelleting Component:

- Hard Pellet Mill
- Liquid Conditioning Feeder (1 or 2 liquids)
- Metered Flow Pump or Pumps
- Meter for each liquid
- Pellet Mash Feeder
- Steam Conditioner
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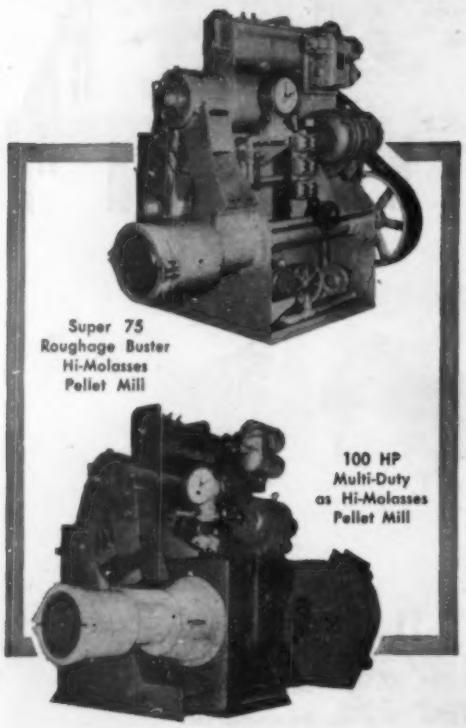
- 1 Minute Changeover from pellets to Wenger-blended mash feeds
- Control Panel for entire pelleting system
- Automatic controls throughout
- Optional Hi-Molasses pellet extruder

Never satisfied with things as they have been, Wenger engineered the Multi-Duty for lowering costs and improving production.

100 HP Multi-Duty with 2 Liquid Feeders

100 HP Multi-Duty with 1 Liquid Conditioning Feeder

50 HP Multi-Duty with Draver type percentage Feeder (motorized variable speed drive optional)



Super 75 Roughage Buster Hi-Molasses Pellet Mill

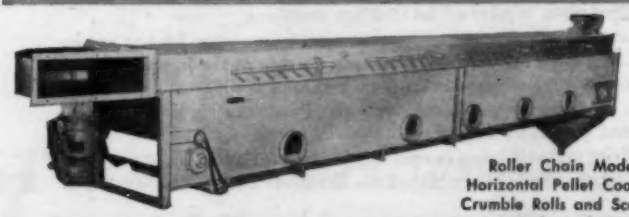
100 HP Multi-Duty as Hi-Molasses Pellet Mill

Multi-Duty produces every major type of feed in demand today from a single packaged unit Pellet Mill

- Hard pellets (with or without liquids)
- Wengerblended mash feeds (1 or 2 liquids)
- Hi-Molasses pellets (optional)

Only WENGER Multi-Duty Offers such ECONOMIES

- in total equipment cost
- in man hours per ton of production
- in operations
- in liquid proportioning
- in floor space
- in installation costs
- in minimizing contamination hazards



Roller Chain Model Horizontal Pellet Coolers. Crumble Rolls and Scalper not shown here.

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Standard of the Industry for Liquid Feed Mixing, Pelleting and Cooling Equipment.

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Poultry Specialist For Beacon Milling

CAYUGA, N. Y. — Appointment of Richard I. Millar as a poultry specialist for The Beacon Milling Co., a division of Spencer Kellogg & Sons, Inc., has been announced by Dr. John M. Snyder, director of poultry research for Beacon.

Richard Millar

Mr. Millar recently completed course work for a master's degree in poultry nutrition at the University of Rhode Island. He took his undergraduate work there also, graduating as a poultry husbandry major in 1954. He is an army veteran.

Mr. Millar has had field experience in the feed business at the retail level. More recently he has done extensive research work in poultry nutrition as a research assistant in the poultry husbandry department at the university. His initial duties with Beacon will include work with Olin A. Rowoth, assistant poultry research director, in the preparation of experimental diets and design of experiments.

Kent Introduces Seasonal Concept To Animal Feeding

MUSCATINE, IOWA—A new seasonal approach to dairy and poultry feeds is being introduced by Kent Feeds, Inc., of Muscatine and Sioux City.

The term Kent uses for the concept is "Seasonized." A company spokesman said "Seasonized" refers to "specific feeds designed for the specific needs of the animal for each season of the year." As an example, the spokesman mentioned the company's new poultry program which calls for a higher protein feed during summer months, and a lower protein, higher energy feed during winter months.

This seasonal feeding concept, according to the company, is based on experimental work which showed Kent researchers the different seasonal requirements of poultry and dairy cattle. The researchers reported that the protein requirement per laying hen remains relatively constant throughout the year, while energy requirements increase during cold months. They found that the hen eats to satisfy her energy requirement, thus increases her consumption of feed during winter months. By decreasing the amount of protein in a unit of feed during colder months there will not be a wastage of protein, the researchers theorize.

The "seasonized" concept applies to dairy cows, also. Kent experimental work and research showed that winter roughages are often deficient in vitamins A and D and lower in minerals than summer pastures. This led to the development of a special supplement for winter time feeding of dairy cows.

The Kent researchers also formulated a supplement for summer use that was bulkier and extra-palatable.

Kent's research and nutrition department is now studying the seasonal needs of other livestock with the anticipation of developing more "seasonized" feeds.

Who Says...?
Eggshell Quality Begins With
EGGSHELL BRAND?
EGGSHELL BRAND
PURE REEF
OYSTER SHELL
The girls at the henhouse know the answer . . . and they're proving it to poultrymen every day.
EGGSHELL BRAND Oyster Shell rings up the dealer's cash register as often because it's tops in the field for digestibility, palatability and economy.
Hens prefer soft reef EGGSHELL BRAND over calcium substitutes. That's why poultrymen prefer it.
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Nopco-Paks are skillfully blended high-quality ingredients including the superior Micratized® Vitamins A and D, formulated to your specifications.

Nopco-Paks are formulated by qualified nutritionists in Nopco's Technical Service Bureau. The bureau's efforts are actively supported by Nopco's Technical Service Laboratory, Vitamin Development Laboratory, Biological Research Laboratory, Organic Research Laboratory, and Assay Laboratory.

With this accumulation of nutritional know-how behind us, we do not have to make exaggerated claims for Nopco-Paks. Rather, we prefer to say: "May we help you work toward the ideal premixes for you—nutritionally and economically?"

Discuss the whole matter with your Nopco representative or write us direct.

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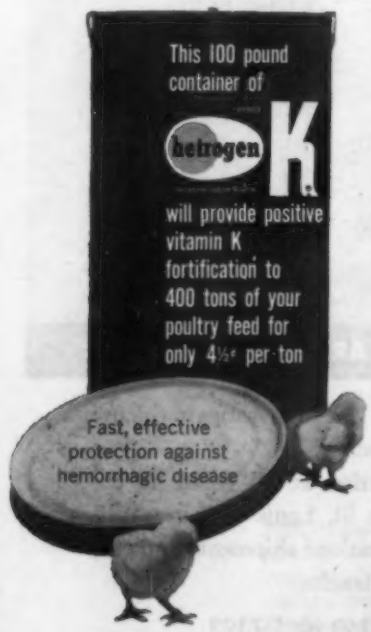
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will provide positive vitamin K fortification to 400 tons of your poultry feed for only 4½¢ per ton
Fast, effective protection against hemorrhagic disease

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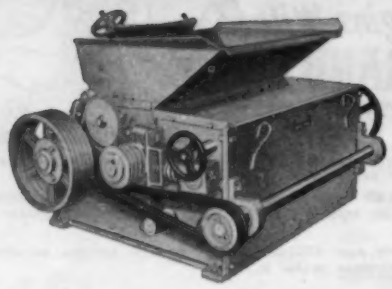

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European Areas Short On Beet Molasses; Enter West's Markets

NEW YORK—European beet sugar production is short by an estimated 1,700,000 tons, the molasses department of Olavarria & Co., Inc., New York, has reported. This deficiency, according to Olavarria, is about 200,000 tons greater than was estimated several weeks ago.

"The sugar shortage will in various ways be made up from other areas," Olavarria said, "but the production of beet molasses will be short about 75 million gallons. This is a very serious condition which could not have been anticipated several months ago."

Company observers noted that European areas affected by the shortage of beet molasses have entered the western hemisphere markets in the last several weeks, bidding for large quantities of cane molasses which ordinarily move into U.S. markets. "It is anticipated," they said, "that European demand for cane molasses will drain off large quantities, thereby reducing supplies available for U.S. purchase and consumption."

Further explaining the European beet sugar shortage, Olavarria observers commented, "Prior to this situation, Cuba and other nearby islands had certain quantities of unsold molasses produced in 1959 without a ready market. The short supply position in Europe appears to have completely reversed this situation. It is natural to expect that the current low retail molasses prices in U.S. Gulf and other areas will be affected by this new development and that prices at retail can materially rise as a result of reduction of availabilities.

"This condition occurs every now and then in many of the commodity markets," they said. "It would appear advisable for the U.S. consumer of molasses to recognize the new conditions and to protect his requirements before the European demand materially exhausts the rapidly diminishing supplies in the nearby areas.

"Sellers and buyers alike may also consider the possibility that Cuban raw sugar production in 1960 may not be as large as the 1959 production of some 5,800,000 tons of raw sugar. Any lower sugar production in Cuba in 1960 would necessarily result in less Cuban blackstrap molasses being produced."

FEED DESTROYED

BATESVILLE, ARK. — Four carloads of feed were destroyed recently when fire swept through the building housing the Guthrie Produce Co. here. Also destroyed was a quantity of dressed chickens stored in the plant.

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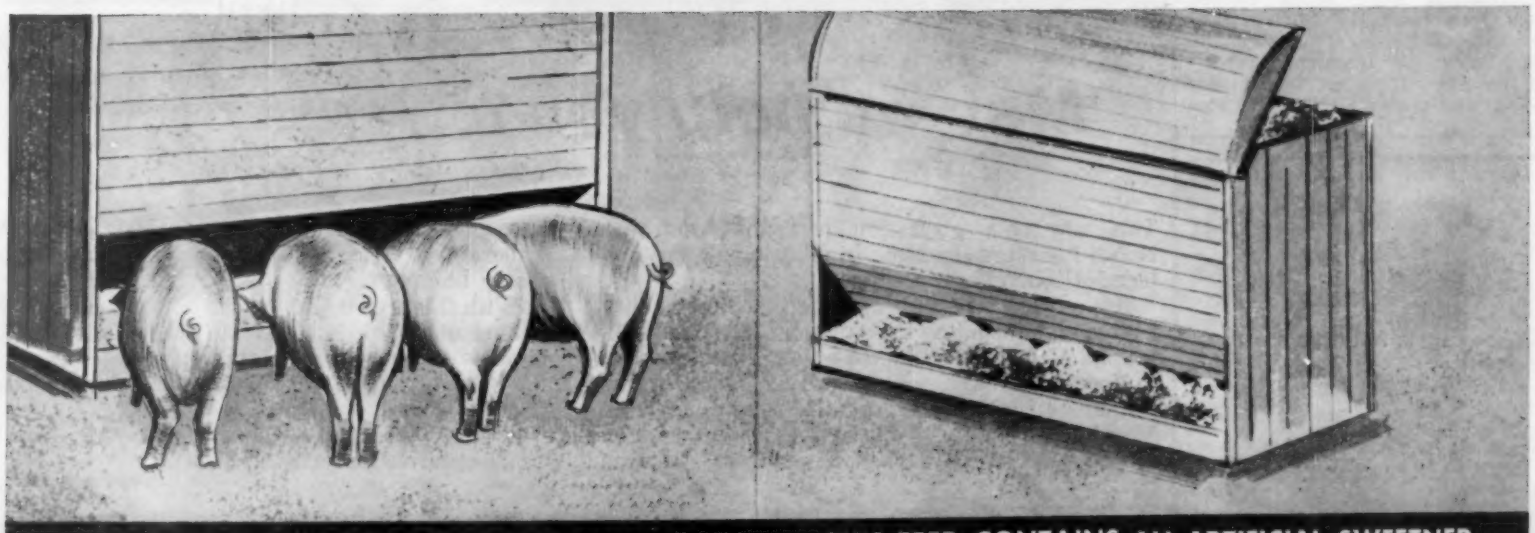

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Hi-energy
Free flowing

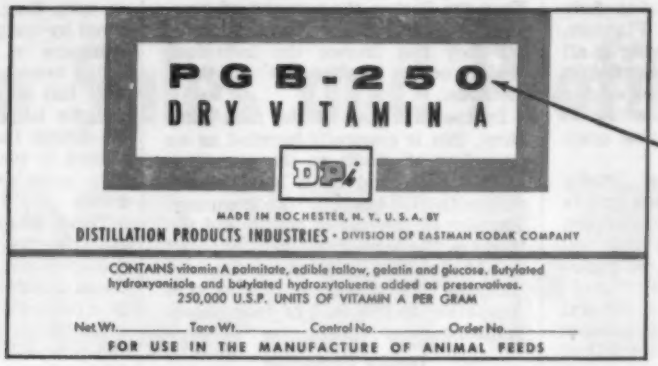
More feeders are relying upon feeds containing pure cane sugar. They know that sugar increases the palatability and energy value of the feed, and gets their livestock off to faster healthier starts. Sugar in feed promotes rapid growth and earlier market weights (an important sales point!). It will pay you to investigate the use of sugar in your feeds.

Large stocks carried at all times at our strategic location in St. Louis with in-transit rates applicable to carload shipments and convenient pick up by trucks.

For complete and detailed information, write, call or wire:

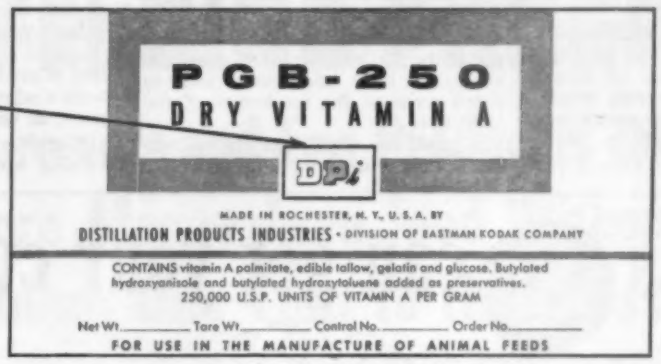
Telephones: MAin 1-8280, 1-8281, 1-2250 or 1-7393
FRED E. BROWN, *President* • HERBERT L. GRUBER, *Executive Vice-President*
ELMER H. AUSTERMANN, *Sec.-Treas.*

International DISTRIBUTING CORP., P. O. BOX 297, St. Louis 66, Mo.


PGB-250
DRY VITAMIN A
DPi
MADE IN ROCHESTER, N. Y., U. S. A. BY
DISTILLATION PRODUCTS INDUSTRIES • DIVISION OF EASTMAN KODAK COMPANY
CONTAINS vitamin A palmitate, edible tallow, gelatin and glucose. Butylated hydroxyanisole and butylated hydroxytoluene added as preservatives.
250,000 U.S.P. UNITS OF VITAMIN A PER GRAM
Net Wt._____ Tare Wt._____ Control No._____ Order No._____
FOR USE IN THE MANUFACTURE OF ANIMAL FEEDS

This is the trademark of DPi's dry vitamin A for fortifying feeds, premixes, concentrates, and other products fed to poultry and livestock. It consists of golden orange spherical particles in a size range between 30 and 120 mesh.

DPi has been a primary producer of vitamin A for a long time, was first to synthesize it commercially in this country, produces vitamin A in a modern plant using methods and processes developed in DPi laboratories.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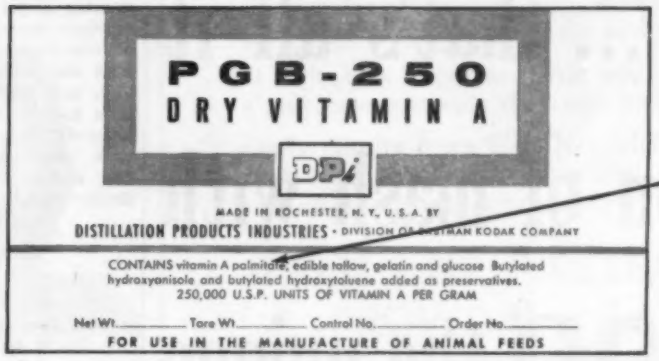
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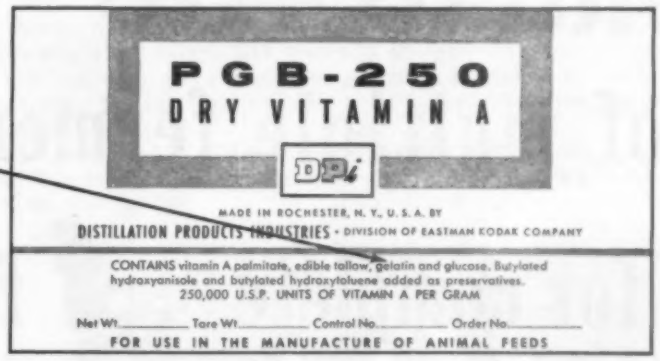
FOR USE IN THE MANUFACTURE OF ANIMAL FEEDS

This is the inherently stable form of vitamin A. It resists the effects of heat, moisture, and long storage.

The vitamin A in PGB-250 is protected from air and the destructive action of minerals by the use of fat, gelatin, and edible food-grade antioxidants. Even at 100 F. and 58% relative humidity in mineral pre-mix, PGB-250 has shown a potency loss of only about 1¼% per week.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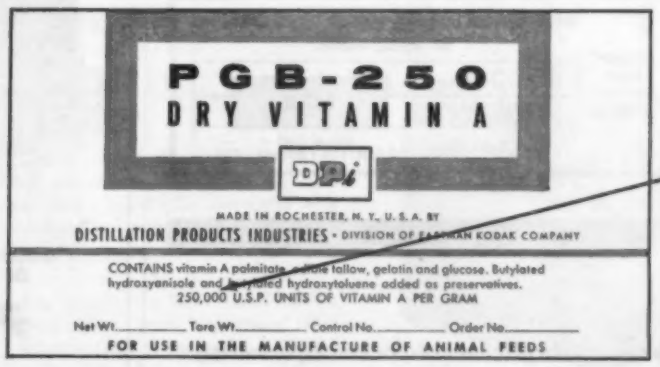
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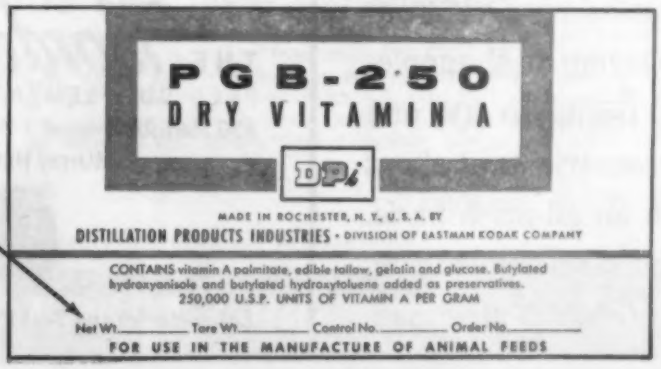
FOR USE IN THE MANUFACTURE OF ANIMAL FEEDS

The vitamin A potency of PGB-250 is 250,000 units per gram. You can also get potencies of 30,000, 20,000, or 10,000 units per gram. The diluent used in these dilutions is solvent-extracted soybean feed of particle size range especially chosen to blend with PGB-250.

PGB-250 Dry Vitamin A is packed in 25-pound and 100-pound polyethylene-lined fibre drums. For further information or a quotation, write ***Distillation Products Industries,*** Rochester 3, N. Y. Sales offices: New York and Chicago • Charles Albert Smith Limited, Montreal and Toronto. (Also available from distributors throughout the country.)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FINANCING

(Continued from page 10)

the credit is only the interest derived from the use of the funds.

The feed company, on the other hand, not only receives compensation for providing the credit, but also receives compensation in the form of income from feed sales. I do feel, however, that some of the surplus in production, particularly in turkeys and broilers, has been brought about by the promotion given to these phases of the poultry industry, along with easy credit by the major feed companies.

I, for one, hate to see this happen since I have always felt that any operator who was not better off financially by having used credit would have been better off if the credit had not been available.

Commercial banks also have a responsibility to their areas and to their customers. We, at Union Planters, have the reputation for striving at all times to carry out our responsibility. I am happy to say we number among our valued customers quite a few of the major feed companies now operating in our area.

I would like to mention briefly some of the ways and means that a bank can work with its customers, the major feed companies. I hope you will pardon the personal reference as to the way we work in our bank, but I believe that in the general framework, our policy of operation is similar to that of other commercial banks.

I want to discuss some of these ways briefly, and I hope during the discussion period I shall have an opportunity to answer any questions you might have, and discuss more in detail some of the mechanics of the operation.

A bank can work with its customers primarily in these different ways: They can finance the parent feed company; they can finance the local dealer; they can finance the individual feeder or a combination of these methods.

In the financing of the feed company, this is generally handled as an open line of credit to the company, with a reciprocal bank balance carried with the bank by the company. The size of the line of credit, and the terms of the loan, are generally based on the financial position of the feed company, its operating results and reputation in the field of feed manufacturing.

Dealer Financing

In the financing of the dealer, the request for credit is generally originated by the feed company, which is the bank's customer, and the dealer's line of credit is considered due to the bank's relationship with the feed company, or with the dealer's local bank.

The line of credit is handled in various ways. It may be handled as an open line; as a line of credit secured by chattel mortgage or feeding contracts on broilers, breeder hens, laying hens, cattle or what have you, with full recourse on the dealer. It may be handled in the financing of the dealer, through trade acceptances offered to the bank by the feed company upon delivery of feed to the dealer.

These credits are cometimes handled directly between the city bank and the local dealer. However, we at Union Planters prefer to handle them on a participation basis, with the local bank having an interest in the loan, and providing an outlet for the servicing of the loan.

The feeder may be financed directly by the bank, and on cattle and hog operations this is generally true. Sometimes, large lines are handled on a participation basis through the local bank, but rarely in the financing of livestock is the feed dealer brought into the operation since generally, if the credit is acceptable, it can be handled by the bank or banks without recourse on the feed dealer.

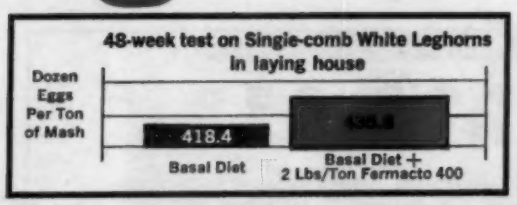
Since laying flocks, breeder hens and broiler programs are of the more specialized nature, we like to handle them by financing the local feed dealer and he, in turn, finances the feeder, along with the safety provided by the endorsement of the dealer.

One point that I think is of much greater importance is that of the services provided by the field staff of the feed dealers and the major feed companies. These field service men are working constantly in the area and if they are doing their job properly, they will be in close touch with the operators. They, in turn, can supply the information to the dealer and the lending agencies.

NEW FEED MILL

DELAVAN, MINN. — Delavan (Minn.) Farmers Elevator is building a new feed mill. Estimated cost of the 28x50 ft. building is $45,000.

Two bits can get your customers 17 extra dozen... that's all it costs to fortify 1 ton of mash with fermacto 400 the unique blend of multiple fermentation factors for complete ugf fortification. Here's proof...


48-week test on Single-comb White Leghorns in laying house
Dozen Eggs Per Ton of Mash
418.4
Basal Diet
Basal Diet + 2 Lbs/Ton Fermacto 400

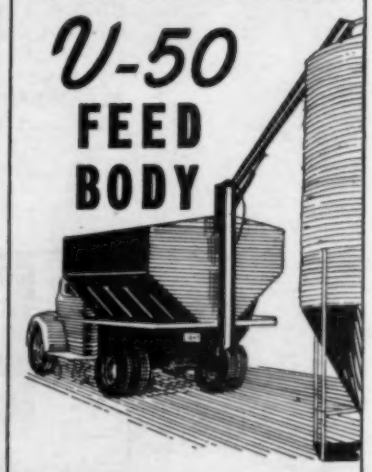
And for economical production without *over-fortification* try Borden's 300 the balanced laying mash supplement containing fermacto 400 and all essential micronutrients at about $1.25 per ton on an all-mash basis. For *custom* blended micronutrients, too, contact your Borden's field man.

For complete price schedules and information contact

THE Borden COMPANY
FEED SUPPLEMENTS DEPARTMENT
350 Madison Avenue • New York 17, New York
MUrray Hill 7-4100

Laboratories and Test Farms at Elgin, Illinois

new... SIMONSEN HIGH DELIVERY V-50 FEED BODY



UNLOADS ALL TYPES OF BULK FEEDS FAST

You'll be way out in front with this attractive new Simonsen High Delivery V-50 Body on your truck. It's all steel, light weight—hauls more payload—cuts delivery costs. Completely hydraulic, with fast rear end delivery at 600 lb. per minute and reaches 21 feet up. Order the size and compartment arrangement you need. Write now for full details on this custom built body by the number one name in bulk feed delivery equipment.

S SEND FOR FREE LITERATURE

SIMONSEN MANUFACTURING CO.
Dept. FS QUIMBY, IOWA

Up Go Sales and Profits When You Sell

GRAN-I-GRIT'S NEW GRIT FEEDING PROGRAM

Broiler Growers and Egg Producers can make More Money from feed Without Adding One Cent to that Cost!

With today's low profit margins it is EXTREMELY IMPORTANT that both Broiler Growers and Egg Producers take advantage of new methods of operation that will increase their profits.

It is just as important that you as a feed manufacturer, jobber or dealer, know about new methods that will increase the profits from your feed.

Daily results from GRAN-I-GRIT'S New Grit Feeding Program are proving that both Broiler Growers and Egg Producers, by getting full feed utilization, are making more money through feeding larger sizes of grit.

GRAN-I-GRIT RESEARCH FIRST PIONEERED and PROVED that Feeding Larger Sizes of GRIT WOULD INCREASE PROFITS

GRAN-I-GRIT Research Proved that larger sizes of grit, instead of passing through the digestive tract like small grit, stays and works in the gizzard.

Larger sizes of grit not only grind feed finer and more efficiently in the gizzard, but keep the digestive tract open for full feed utilization by completely grinding feathers and fibrous litter that all birds will eat.

By informing your customers of GRAN-I-GRIT'S New Grit Feeding Program you can show them HOW TO MAKE MORE MONEY FROM YOUR FEED, which in turn will stimulate your sales and profits.

Made $31.00 MORE PROFIT Per 1000 Broilers

Mr. Gurney C. Hodges, top broiler grower of Low Gap, North Carolina, states, "I tested GRAN-I-GRIT'S New Grit Feeding Program on 4,000 broilers, feeding the larger sizes of GRAN-I-GRIT as recommended. I made $127.50 more with these 4,000 broilers than I did with 4,000 broilers, raised at the same time, to which I did not feed the larger sizes of grit. I feel sure that the larger sizes of grit were responsible for this outstanding result."

Get Full Details GRAN-I-GRIT'S *New* Grit Feeding Program

We have a new GRAN-I-GRIT circular that gives full details of the new GRAN-I-GRIT program of feeding larger sizes of grit . . . the program that is proving so successful with both Broiler Growers and Egg Producers. Write today for a free copy.

Top poultrymen use GRAN-I-GRIT. They know from experience that GRAN-I-GRIT is the best profit producing grit they can use. GRAN-I-GRIT is insoluble . . . does not dissolve and cannot change the mineral balance of your feed.

GRAN-I-GRIT is packed in 10 lb. Easy to Stock, Self Feeding Packs that save valuable storage space, time and labor and in 25, 50 and 80 lb. multiwall paper bags.

GRAN-I-GRIT IS BEST WITH *Eye Appeal*

Selected By Birds

20 to One Over Other TYPES OF GRIT

Chicks, broilers, pullets or layers must consume the proper amount of grit to get maximum results from feed and GRIT MUST HAVE EYE APPEAL before poultry will eat it. Side by side tests on poultry farms and by leading poultry authorities have proven that poultry of all ages prefer a light gray grit with black specks . . . the GRAN-I-GRIT TYPE . . . (as much as ten, fifteen, twenty to one) over grit of other colors.

NORTH CAROLINA GRANITE CORP. Mount Airy, North Carolina

Member of Granite Grit Institute of America

THE GRIT WITH THE SHARPEST GRINDING EDGES EVER CUT

☆ Classified Ads ☆

Classified advertisements received by Tuesday each week will be inserted for the issue of the following Saturday. Rates: 15¢ per word; minimum charge $2.25. Situations wanted, 10¢ a word; $1.50 minimum. In figuring cost of your classified ad . . . each word, abbreviation, telephone exchange and number, set of initials, or group of figures counts as a word. To the number of words in your want ad itself add six (6) words for your name and address or name and address of your firm. This applies for both direct-reply ads and for blind ads containing a box number. If an ad is keyed, care of Feedstuffs, 20¢ per insertion additional charged for forwarding replies. Commercial advertising not accepted in classified advertising department. Display advertising accepted for insertion at minimum rate of $12.00 per column inch. No discount on ads ordered for more than one insertion.

All Want Ads cash with order.

HELP WANTED

MACHINERY SALESMAN, TO SELL ELEvator, flour and feed mill equipment. Salary to start. Address Ad No. 5309, Feedstuffs, Minneapolis 40, Minn.

SALES MANAGER, CENTRAL STATES feed manufacturer. Opportunity for growth with company. Address Ad No. 5293, Feedstuffs, Minneapolis 40, Minn.

FEED CHEMIST TO SET UP NEW LABOratory for midwestern feed manufacturer. Initial work to be basic analyses of inbound ingredients and outbound feed. Address Ad No. 5233, Feedstuffs, Minneapolis 40, Minn.

SALESMAN — NATIONAL FEED MANUfacturer seeking salesman experienced in agricultural field for work in Michigan territory. This is an opportunity to establish a satisfying career in a growing industry. Write with qualifications to W. G. Stokes, District Sales Manager, 12730 Beck Road, Plymouth, Mich.

MANUFACTURER'S REPRESENTATIVE — Well known manufacturer has opening for man now calling on feed dealers to sell special fast selling product to dealers, good commission, payable monthly, full credit on repeat business, excellent sales promotion program. For details give territory now covering and how often. All replies confidential. Write R. F. Davis, Box 5020, Minneapolis 6, Minn.

SALESMAN WANTED SELLING TO FEED manufacturers, ranchers and dairymen, location south Texas. Salary or commission basis plus traveling expenses. Requirements: Approximately 30 years old with successful selling and some administrative experience and, if possible, agricultural background. Please apply in handwriting giving personal data, education, experience and some references and attach, if possible, snapshot. Address Ad No. 5306, Feedstuffs, Minneapolis 40, Minn.

SALESMAN

Nationally known manufacturer of milk products to call on feed manufacturers and feed dealers in Wisconsin-Minnesota territory. Experience desirable but not absolutely necessary. Age limit 24-40 years. Salary and commission plus expenses. We furnish car. In reply furnish full details such as age, education and resume of your entire business career. Write Ad No. 5283, Feedstuffs, Minneapolis 40, Minn.

NUTRITION OPPORTUNITY

Excellent opportunity, experienced animal feed nutritionist, 30 to 40 years of age, married, capable handling duties pertaining to managing department, assist sales, advertising departments, nutritional promotion, public speaking. Bound progressive Middle West feed manufacturer. Answer by letter giving educational background and business experience, with references, to Address No. 5295, Feedstuffs, Minneapolis 40, Minn.

Manager for Central Ohio Elevator and Feed Store

Excellent facilities for grinding, mixing and grain handling.

Very good opportunity for an aggressive individual experienced in merchandising feed and grain.

Reply to

John W. Eshelman & Sons
P.O. Box 380, Circleville, Ohio

Formula Feed Salesman

We have openings for territory managers and assistants in Michigan, Wisconsin and Illinois territories. Sales experience in formula feeds or an agricultural background desirable.

You would be selling a complete line of high quality feeds through dealers. Sales backed by experienced nutritional researchers and aggressive advertising.

Limited traveling, company car, paid expenses, salary plus high potential earnings from bonus commissions.

Please mail your complete resume to G. M. Prust,

A. E. STALEY MANUFACTURING CO.
Decatur, Illinois

HELP WANTED

DISTRICT SALES MANAGERS-SALESMEN —Manufacturer animal health products, antibiotic vitamin mineral supplements. Territories open Indiana, Illinois, Iowa, Wisconsin, Michigan, Pennsylvania, New York, other states. Expenses, salary, commission. Give details, experience, references. Address Ad No. 4510, Feedstuffs, Minneapolis 40, Minn.

SALES ENGINEER — FAMILIAR WITH feed milling machinery, pellet mills, coolers, liquid blending equipment, feed mill layouts. Age 30 to 40, engineering background, heavy emphasis on sales. Interested in high earnings $15,000 per year or better. Travel Monday through Friday. Sober and reliable. Only man possessing above qualifications and presently successful need apply. Address Ad No. 5199, Feedstuffs, Minneapolis 40, Minn.

MACHINERY FOR SALE

FEED MIXER, 1-TON CAPACITY, GUARanteed first-class throughout, 5 H.P. motor drive. Address Ad No. 3479, Feedstuffs, Minneapolis 40, Minn.

WHIRLAWAY AIRBLAST CAR LOADERS, cast iron pulleys, new and used feed and elevator equipment. Hagan Mill Machinery, P. O. Box 574, Jefferson City, Mo.

HAVE PRATER NO. 5 CORN CRACKER and grader with aspirator for sale, reasonable. Jack White's Hatcheries, Farmington, Iowa.

1955 DAFFIN MOBILE MILL—GOOD CONdition, mounted on GMC truck. Address Ad No. 5276, Feedstuffs, Minneapolis 40, Minn.

STRONG-SCOTT SCALPER, MODEL 205, complete with motor, magnet, etc. Good condition. Address Ad No. 5298, Feedstuffs, Minneapolis 40, Minn.

RIPCO BULK FEED AIR UNLOADER, used on flat grain bed. Fuller blower, all accessories. Effingham Equity, Box 480, Effingham, Ill.

FOR SALE—1958 B & L MOBILE MILL. Mounted on F-750 Ford truck. Excellent condition. Joe Gamble, Mechanicsville, Iowa.

ONE USED SPROUT-WALDRON NO. 22 plate mill with two 20 H.P. motors, 5 H.P. motor on fan, reversing switch and starter. A. W. Stauffer & Sons, Terre Hill, Pa.

ALMOST NEW FORDS MOLASSES blender (model 2-rh), 15 H.P. T.E.M. 15 R.P.M. Heavy duty 2,000 lb. Puritan Mineral mixer. Excellent condition. No motor. Wright Feed Mill, David City, Neb.

SALE: ALUMINUM TANKS, 22,000, 18,000, 3,000 gal. Dewatering presses; Davenport No. 1A, 3A, Louisville 8-roll 36". 3—Louisville rotary steam tube dryers, 6'x50', 6'x 25', 4' dia. stainless steel spray dryers. Perry, 1403 N. 6th St., Philadelphia 22, Pa.

TWO ONLY GAS REFRIGERATORS AND drying units, exothermic type, 1000 CFH and 750 CFH capacities. Complete with all controls, excellent condition. Address Ad No. 5310, Feedstuffs, Minneapolis 40, Minn.

4,000 GAL. MOLASSES TANDEM TRAILER for sale, 10-25 tires, 25 H.P. gasoline engine to unload. Will unload in one hour. This trailer is five years old and is in use at present. Price $1,150. Address Ad No. 5312, Feedstuffs, Minneapolis 40, Minn.

60 H. P. SPROUT-WALDRON PELLET mill and cooler. 50 H.P. heavy duty California pellet mill and cooler. Call or write J. E. Hagan Mill Machinery, P.O. Box 574, Jefferson City, Mo.; Phone 6-2197.

FOR SALE—ENCLOSED MOTORS; RICHardson Scale; truck scales, hammermills; oat crimpers; horizontal and upright feed mixers; sewing machines; elevator legs; screw conveyors; molasses mixers and pellet mills. J. E. Hagan Mill Machinery, Box 574, Jefferson City, Mo.

FOR SALE—ONE PORTABLE MILL, J.B. 20 in., 3,000 lb. mixer, molasses pump, 3,000 lb. molasses tank, power unit 110 H.P. G.M. diesel. All mounted on 1956 V-8 Chevrolet 2-ton, 6400 series, with heavy duty springs and rims, only 1,500 hours' service on unit, good condition, priced right. Write or phone Harold Attebery, Box 393, Granville, Ohio.

MACHINERY FOR SALE

MELO'S PORTABLE MILL, MIXER AND sheller; 13,000 miles on truck I.H.C., 627 hours on diesel motor; 2½ years old. Good condition. Address Ad No. 5302, Feedstuffs, Minneapolis 40, Minn.

MACHINERY WANTED

WANTED—USED FISCHBEIN MODEL C bag closer. A-1 condition. Ti-Co Industries, Inc., Box 185, Tipton, Ind.

ALL KINDS OF GOOD USED GRAIN processing machinery. E. H. Beer & Co., Inc., Baltimore 24, Md.

WANTED — COMBINATION BULK AND sack feed truck, 1956 or later, minimum capacity 6 tons. Wright Feed Mill, David City, Neb.

WANTED TO BUY — RICHARDSON scales, bag closing machines and other good mill, feed and elevator equipment. J. E. Hagan Mill Machinery, Jefferson City, Mo.

BUSINESS OPPORTUNITIES

FOR SALE—FEED MILL IN WEST CENtral Wisconsin. Fully equipped in good dairy area. Closing of estate. Wilson Elevator Co., Wilson, Wis.

FOR SALE — SEVERAL GOOD GRAIN elevators and feed mills in Indiana. Financing can be arranged. When buying or selling a grain or feed business, call us. Boyer & Nail, Real Estate Brokers, Milroy, Ind.

FOR SALE—LONG ESTABLISHED YORK County feed mill. Complete with grinder, mixer and all necessary equipment. Purina feeds and warehousing. Swift's fertilizer. Selling due to death of manager. Dover Feed & Hardware Co., Dover, R. D. No. 3, Pa.

FOR SALE

3,000 tons per month complete feed plant serving a radius of 100 miles in southern Idaho, Nevada, Utah—terrific potential—write for free brochure and further information. Address Ad No. 5253, Feedstuffs, Minneapolis 40, Minn.

SITUATIONS WANTED

MOLASSES OR FEED SALESMAN—POSItion N. J., Pa. and New England. Commission, traveling expense. Address Ad No. 5290, Feedstuffs, Minneapolis 40, Minn.

MISCELLANEOUS

WANTED

Going Grain Elevator Business

with active sidelines. Prefer north half Indiana, Illinois, Ohio. Am private buyer. Address Ad No. 5299 Feedstuffs, Minneapolis 40, Minn.

Buy Only Burrows

Guaranteed Factory Rebuilt

MOISTURE TESTERS

All makes used electric testers. Carefully reconditioned by factory trained electronic engineers. Guaranteed for one year. $100.00 and up. FREE 200-page catalog of grain and feed equipment.

BURROWS EQUIPMENT COMPANY
1316-C Sherman Avenue
Evanston, Illinois

FOR SALE

Feed & Grain Handling & Processing Equipment

NEW & USED

Scales, Hammermills, Feed Mixers, Sewing Machines, Elevators, Pellet Mills, and Grain Cleaners

E. H. Beer & Co., Inc. Ibsen Ave. & Newkirk St. Balto. 24, Md.

Joe Joffee Clyde Lott

Dannen Milling Firm Announces Promotions

ST. JOSEPH, MO. — Four promotions in the Dannen Mills organization, effective Oct. 1, have been announced by Dwight L. Dannen, president of the milling firm. The promotions involve:

Joe Joffee, purchasing agent for the past nine years, who has been transferred to the grain and jobbing division to direct oat product sales and the purchasing of packinghouse byproducts.

Clyde Lott, manager of the central district of the country station division, to purchasing agent.

Wayne Stetman, Commodity Credit Corp. grain accounting in the administrative division, to the grain and jobbing division.

Bernard Meyer, manager at Blackwell, Okla., to the post of manager of the central district of the country station division.

Pigments, Light Used In Coccidiosis Studies

WASHINGTON — Daylight fluorescent pigments and ultraviolet light are now being used by U.S. Department of Agriculture livestock scientists to locate and follow movement of bovine coccidiosis cysts through digestive tracts of animals, according to a recent announcement.

Leonard R. Davis and Willard N. Smith, USDA's Agricultural Research Service, found the pigments easy and safe to use in tests conducted at the Regional Animal Disease Laboratory, Auburn, Ala. In contrast, the use of radioactive isotopes, a common method for tracing chemicals, requires specialized training and expensive equipment, they said.

The scientists suggest that the use of pigments would easily differentiate between test and control animals. The pigments could also locate areas of fecal contamination of soil by infected animals and determine sites on animals for injection of organisms, drugs and chemicals.

A mixture of pigments, milk and coccidiosis cysts was fed to laboratory animals. The pigments adhere to the cysts, and through use of ultraviolet light, scientists were able to observe location of the cysts throughout the digestive systems of test animals.

In experiments with calves and lambs, pigments were mixed with bentonite, an absorptive compound, and given by capsule for several consecutive days. Each calf received 3 gm. of pigment, and each lamb got 2 gm.

Another lamb received 2 gm. of pigment given by mouth in liquid form. The pigment was visible in feces of these animals for two days, but on the third day it could be detected only by ultraviolet light.

Worth Crowing About!!

FEEDSTUFFS WANT ADS

Growing Firm Serves Customers With Mills, Stores on Wheels

Full-Time Supervisor Coordinates Movement Of Mobile Equipment, Checks on Performance.

By Al P. Nelson
Feedstuffs Special Writer

When a feed company increases its mobile mill service from one unit to three within five years, what additional operational procedures are needed?

Wisconsin Milling Co., Menomonie, Wis., headed by Robert L. Pierce, started with one mobile mill unit four years ago. Now it has three units. Each unit was added as business increased. Today, the firm has a total of 15 routes for the three mobile units (5 routes each). Each unit also has a combination supply truck and retail store on wheels.

During the past year when the firm added its third mobile unit, Mr. Pierce hired a mobile division supervisor who spends all his time on this operation. This move has helped to coordinate the activities of the three mobile mills, has resulted in more sales and better service to on-the-farm customers.

Supervisor's Duties

The supervisor does the following things:

● Arranges route calls for the three units. When one unit has too many calls to handle in one day, and another unit has fewer calls, then calls are reassigned. The supervisor makes all decisions on route calls, and it is his responsibility to see that all customers are serviced.

● He rides with each mobile truck operator one full day each month checking his operations and making notes on improvements and needs. Part of the time when the unit operator and his helper are grinding and mixing, the supervisor will call on the farmer and his wife, and ask them if they like the service. In this way he learns first hand just what each customer likes or may dislike about mobile service. Mr. Pierce reports that this visiting with the farmer and his wife is very important to complete customer satisfaction.

On such calls the supervisor is able to call the attention of the farmer, too, to the many feed and farm supply items which are carried in the truck accompanying the mobile unit. Thus he often opens the way for more sales.

"The operating team on a mobile mill is often too busy actually doing the grinding and mixing job to do intensive selling or customer relations work," states Mr. Pierce, "although we do want them to do as much as time permits. However, we rely on the traveling supervisor to do more thorough public relations contacts."

When the supervisor has time he makes calls on other farmers who might become prospects for mobile mill calls. Or he may follow up on cold canvass prospects that the mobile operator has called on once or twice.

Mr. Pierce reports that his firm keeps records on the day-by-day work and sales receipts of each mobile unit and its accompanying supply truck and retail store on wheels. Following is what the three units did on April 30, 1959:

Unit 1—grinding, $75; sales from truck, $423.64.

Unit 2—grinding, $67.50; sales from truck, $395.36.

Unit 3—grinding, $79.50; sales from truck, $473.48.

(Figures include some seasonal seed sales.)

Checking Performance

By watching the daily work and sales performances of each unit, the supervisor can gauge average performance and see whether performance can and should be bettered, and whether more effort should be made to sell more farm supplies from the supply trucks.

"We know what each crew does every day," says Mr. Pierce, "and if remedial measures are needed, we can spot the need immediately."

Mr. Pierce has found that many impulse sales of farm supply items are made to farmers from the supply trucks. Each truck has several doors which are left open while the truck is parked on the farm premises. Members of the farm family can hardly resist taking a look inside, and when they do they often spot something they need.

Each mobile unit has five routes and can grind for about 15 customers a day. Seventy five per cent of the customers Mr. Pierce has for his three mills are customers who never patronized the mill's stationary plant in town. Twenty five percent of the mobile units' volume comes from former stationary mill customers who prefer mobile to stationary mill service, largely because of convenience.

"We have learned from our mobile mill experience that some customers like to continue bringing their grist to our stationary mill and shop in town at the same time," states Mr. Pierce. "Then, too, some farmers have small grinds of a thousand pounds or so, and it pays them to bring such small amounts in, rather than have a mobile unit do it."

As a result of having three mobile units, Wisconsin Milling Co. has greatly extended its territory from which it gets business. This is beneficial in several ways. Farmers who

MOBILE MILL AND SUPPLY SERVICE—Lined up in front of Wisconsin Milling Co. building at Menomonie, Wis., are mobile mills and farm supply trucks operated by the firm. The firm started with one mobile mill four years ago; others were added as business increased.

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note a neighbor is getting mobile service may later drop in at the Wisconsin Milling Co. in Menomonie to get other items besides feed. In other words, aside from getting additional business, a mobile service has its advertising value, Mr. Pierce points out.

Before the firm added mobile service, it often had to haul grain from farm to mill, process it, and then haul it back again. This was an expensive service for which the farmer would not pay full price. Today, such grain hauling for grinding needs is rare.

Maintenance of the mobile units will be greatly facilitated through the construction of a new mobile supply center. This will house the three units and provide quarters where they can be greased and washed and checked thoroughly.

"With a supervisor of mobile operations, we find that our trucks get better attention," states Mr. Pierce. "The operators and helpers during rush seasons often have so many grind and mix jobs to handle that they do not have time to do an adequate maintenance job as often as required. Now the supervisor arranges for regular maintenance on a schedule basis."

This mill owner is well satisfied with his mobile service, and says that it ties in very well with stationary mill and farm store operations. It funnels business to the firm from outlying areas and increases overall sales regularly. It provides regular contact with numerous farmers, with the opportunity to sell extra mill and farm supply items to them seasonally.

Wirthmore Promotions

WALTHAM, MASS. — Two sales-service promotions have been announced by R. D. Emmons, general sales manager for Wirthmore Feeds Inc., Waltham.

Gordon Weinstock, Ravenna, Ohio, a graduate of Ohio State University and Wirthmore poultry service representative since 1957, has been appointed district manager for northeastern Ohio.

Haven Carskadon, Newport, Ohio, also a graduate of Ohio State, was a Wirthmore dairy serviceman until his recent promotion to district manager in the company's Ohio-West Virginia territory.

Grain Mill Employment

SAN FRANCISCO—The number of firms processing grain and manufacturing grain mill products in California rose from an estimated 209 during the summer of 1957 to 222 twelve months later, according to the division of statistics and research of the California State Department of Employment.

Employment in these firms dipped slightly from an estimated 7,800 per month during the earlier year to around 7,600. Total quarterly wages nonetheless increased between the two periods from $10,597,222 to an estimated $10,970,481.

Swine Production Meeting Planned

ATHENS, GA.—Several aspects of swine production and marketing, particularly pertaining to Georgia, will be taken up at a meeting at the University of Georgia Nov. 4-5.

Scheduled addresses on Nov. 4 include: "Recent Changes in the Demand for Pork and Competition from Other Meats," by J. C. Purcell, University of Georgia economist; "What Kind of Hog Should We Grow?" by W. C. Haase, Swift & Co.; "How Are Hog Marketing Systems Changing?" by Harold V. Clum, University of Georgia economist; "How Cheap Can We Produce Hogs?" by Dr. Ray Sewell, department of animal husbandry, University of Georgia, and "What Is the Future of Grain Production in Georgia?" by Ralph Johnson, University of Georgia agronomist.

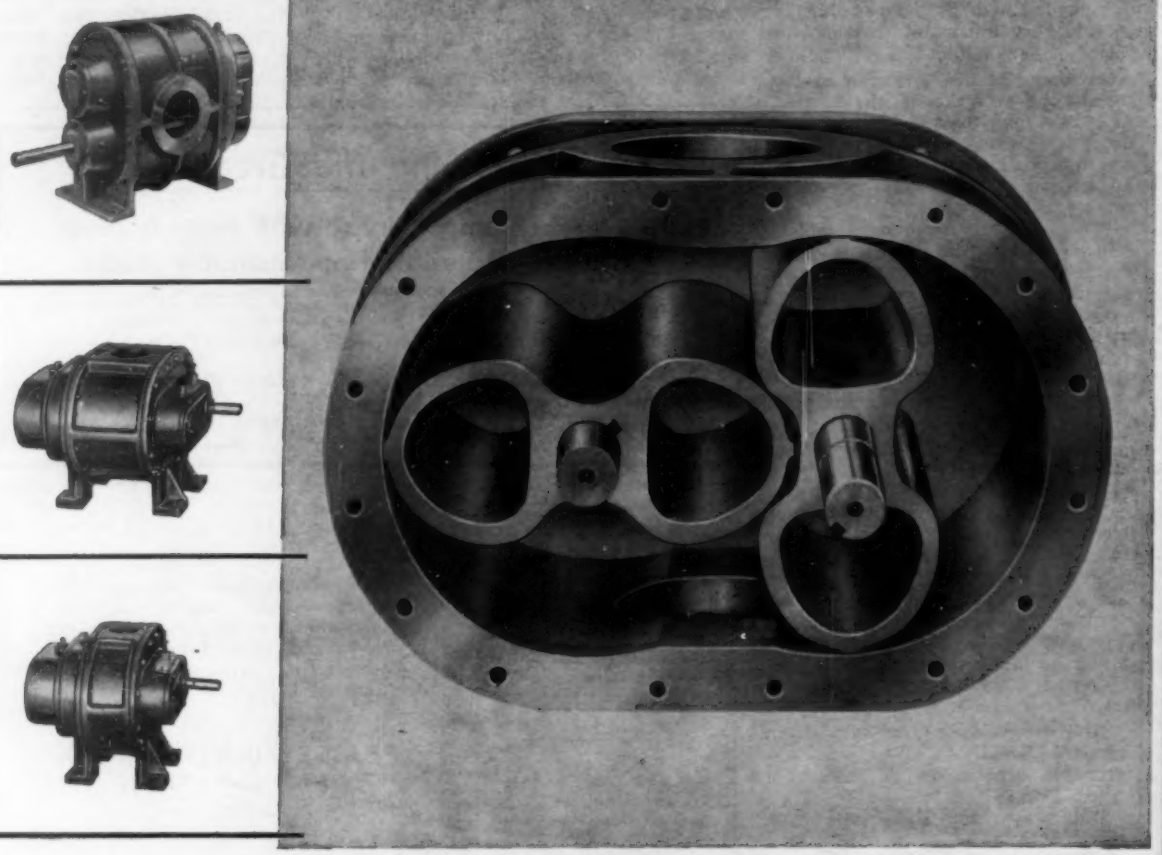
Dinner speaker the evening of the first day will be D. R. Willcox, Jr., manager of the Norris Cattle Co., Montezuma, Ga. His topic will be "Experiences in Large Scale Hog Production."

Addresses for Nov. 5 are: "Midwest or Local Grain for Hogs?" by George Bible, Mountain Cove Farm, Kensington, Ga.; "Will Vertical Integration Strengthen Our Competitive Position in Hog Production?" by Joe Elliott, editor of The Progressive Farmer, Raleigh, N.C., and "Which Way Hogs in Georgia?" a panel discussion headed by Prof. J. W. Fanning, chairman of the agricultural economics department at the University of Georgia. Panel members will be James Croxton (banker); George B. Rogers (representing independent meat packers); W. D. Perry (representing the Georgia Stockyard Operation Assn.); Bill Brunnell (producer), and W. L. Whittle (county agent, representing the agricultural worker).

The meeting will be held at the Livestock-Poultry Building at the university. Sponsoring groups are the animal husbandry, agronomy and agricultural economics departments at the university; the Georgia Swine Growers Assn., and the agricultural committee, Georgia Bankers Assn.

Canadian Egg Output

OTTAWA — Production of eggs in Canada in August declined to 33,620,000 doz. from 33,713,000 in the corresponding month last year, while output in the January-August period increased 4.6% to 312,181,000 doz. from 298,569,000, according to government statistics. Average number of layers in August fell to 27,380,000 from 28,109,000, while average number of eggs per 100 layers rose to 1,489 from 1,451.



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Cargill Plants Add Bulk Facilities

MINNEAPOLIS — Expansion of three processing plants to include bulk feed storage and handling facilities has been completed by Cargill Hybrids, according to an announcement at Minneapolis by George L. Jones, general manager.

Plants in St. Peter, Minn., and Grinnell and Mt. Pleasant, Iowa, each have added 102-ton-capacity storage bins, and have been equipped with bulk delivery trucks, Mr. Jones said.

"We consider the addition of bulk service—already accepted as an essential to farm efficiency in many regions—a major plus to area farmers, many of whom are livestock and poultry producers," he said. The plants will handle Nutrena Feeds from Cargill's feed division. Grinnell and Mt. Pleasant will be supplied from the firm's Cedar Rapids, Iowa, mill, and St. Peter from Minneapolis.

Distribution from each plant will be by truck, Mr. Jones said, with Mt. Pleasant assigned two vehicles—one 8-ton and one 12-ton—and Grinnell and St. Peter each receiving 8.5-ton-capacity carriers. Feed at each plant will be stored in six 17-ton tanks alongside a 36-ft. platform scale on which trucks are weighed as they load.

Most volume is expected in poultry, swine and cattle feeds, and all plants will stock a complete line of sacked feeds, Mr. Jones said.

AFFCO

(Continued from page 1)

mediate dropping of the present official millfeed definitions which are being replaced by the new "tentative" ones. It passed, after some spirited discussion, by a vote of 19 to 9.

Helped by Industry

The new definitions were presented for discussion at the states relations committee meeting preceding the convention by Parks A. Yeats, Oklahoma City, AAFCO wheat products investigator. They were developed in cooperation with representatives of the flour milling industry, some of whom appeared at the meeting to urge adoption of the new definitions.

Here is a rundown on the new names for these products (complete details will appear in the AAFCO executive committee's report, to be published in Feedstuffs next week):

The definition, wheat mill run, will replace the present wheat mixed feed definition. Standard middlings is being stricken and replaced by a definition for wheat middlings.

A definition for wheat shorts replaces the gray shorts definition, and the new wheat red dog definition removes two of the synonyms now appearing in that definition. No change is being made in the bran definition.

A resolution pertaining to wheat products also was passed to replace the one presently appearing at the end of the definitions. It provides that when ground wheat screenings are added to any wheat product, such screenings shall be limited to ground wheat screenings not exceeding the run of the mill and screenings from outside sources cannot be added. The declaration of screenings must be a part of the product name and in the same size type.

Rice Bran Change

A new definition for rice bran was adopted as tentative but given the effect of "official" status through the same procedure adopted for the wheat products. It was reported that the present rice bran definition does not describe any product available on the market today.

Another definition proposal that brought on considerable discussion at the states relations committee meeting was that for "condensed fermented corn extractives," ultimately recommended for future discussion by the association. Members of the distilling industry raised objections to the usage of the term "fermented" in one proposal while representatives of the corn wet milling industry, which markets the product, presented arguments on the other side.

Indications were that the definition finally recommended will be acceptable to the industries concerned.

A statistical summary of a state survey on acceptance of the "and/or" basis of alternate ingredient declarations in feed registrations (not labeling) indicated that most states would accept this method on grains and oilseed meals, but there was less agreement on molasses and fibrous substances.

More Straube House Contributions Listed

MANHATTAN, KANSAS—A supplementary report on contributions of funds for the Oscar Straube Memorial Scholarship House at Kansas State University points out that, to date, a total of 102 separate gifts has been received.

This, explained K-State officials, includes both personal gifts and group and corporate gifts.

As reported in the Sept. 26 issue of Feedstuffs, several feed companies have "purchased" rooms in the house which is to be used by qualified students in feed technology and related fields. Other contributions were mentioned in a story in the Oct. 3 issue.

In addition to firms listed previously, the following have made gifts of $100 or more: Elliott Norquist, Feed Specialties, Inc., American Trade Publishing Co., Nutrena Mills, Inc. (separate from gift for two rooms), Central Soya Co. (separate from purchase of room), Quaker Oats Foundation, American Feed Manufacturers Assn., American Cyanamid Co., employees of Pay Way Feed Mills (company of the late Mr. Straube), and Pay Way Feed Mills.

It has been pointed out that some $25,000 more in contributions will be needed to make the scholarship house a reality.

STANDARDS

(Continued from page 1)

ered an important objective of the organization along with its research program in general.

Dr. Douglas V. Frost, Abbott Laboratories, was elected president to succeed Dr. Walter Glista, Wirthmore Feeds. Dr. Stanley Ames, Distillation Products Industries, was named vice chairman, and Dr. D. E. Becker, University of Illinois, and Dr. Phillip Derse, Wisconsin Alumni Research Foundation, were named to the board of trustees. Irwin Olcott, Dawe's Laboratories, is secretary-treasurer.

In introducing the discussions, Dr. Ames pointed out that the technical projects committee considers that the presently available standards for vitamins A, E and K are inadequate for some bioassay procedures or for the determination of minimum daily requirements. Proposed ANRC standards are therefore being evaluated in a number of cooperating laboratories.

Dr. Ames said that an ANRC Reference Standard should possess as many as possible of the following characteristics: High purity, easily analyzed by chemical procedures, reasonably stable when mixed in feeds, easily obtainable in the necessary quantities, known content of biologically-active isomers, high biological availability, known relationship to present USP and International Standards.

"Thus, an ideal ANRC Reference Standard can be employed either as an oral supplement or as a dietary additive. Furthermore, it can be used for inter-laboratory comparisons of various products and as a standard of reference in various research programs," he said.

Here are abstracts of most of the discussions presented at the ANRC meeting:

PREPARATION FOR VITAMIN K ASSAY OF FEEDS, Douglas V. Frost, Abbott Laboratories: The present AOAC assay measures only the potency of vitamin K preparations to promptly cure vitamin K deficiency. An official assay to measure the vitamin K adequacy of commercial feeds, especially under stress, would appear now to fill an even greater need.

Choice of vitamin K standard, basal diet and assay procedure is needed prior to setting up a collaborative assay. Menadione appears unsuitable as a standard because of its low and variable activity. Vitamin K_1 has desirable features, but is more difficult to handle and to disperse evenly in feeds than menadione sodium bisulfite complex, such as Klotogen F. Both standards are now used to advantage.

Need for vitamin K is increased and the assay sharpened by use of 0.1% sulfaquinoxaline as a specific vitamin K antagonist. The 0.1% level appears most suitable for assay purposes, avoiding frank toxicity but increasing K requirement several fold.

The modified K-low ANRC ration with 0.1% sulfaquinoxaline appears satisfactory, both as regards growth rate and vitamin K deficiency achieved (J. Nutrition, 59, 181, 1956). Purified diets are being studied at Cornell. These may have advantage in absolute avoidance of vitamin K contamination, but may not produce as good growth as the ANRC ration. Where 0.1% sulfaquinoxaline is used, the effects of traces of vitamin K are minimized.

Where three or more critical levels of MSBC or vitamin K_1 are added to the K-low ANRC ration containing 0.1% sulfaquinoxaline, a straight-line prothrombin response is obtained. Prothrombin level for chicks on test diets to which 0.1% sulfaquinoxaline is also added closely reflects their vitamin K content.

Another assay approach is to make suitable dilutions of a test feed with a standard feed known to be almost devoid of vitamin K. Assay of these dilutions against critical amounts of standard added to the K-low feed should peg the K content of the test feed. Studies conducted at Cornell are expected to establish the advantages of this approach.

Other vitamin K possibilities under consideration are: Microbiological assay, use of other K-antagonists to shorten the assay, and use of other species. None of these appear to offer as many advantages for official assay of chick feeds as the above. The same principle can be applied to assay of turkey feeds. The addition of 0.1% sulfaquinoxaline to poult rations evokes an even more dramatic need for extra vitamin K than is shown by the chick.

STUDIES ON VITAMIN K ASSAY DIETS, M. L. Scott, Cornell University: Graded levels of pure vitamin K_1 and menadione sodium bisulfite were added to a practical basal ration that contained 0.1% sulfaquinoxaline in an attempt to find if the ration would be suitable for use as a standard assay diet for vitamin K. In addition, a commercial broiler ration was extracted with 95% ethanol. The extract was added to the practical ration at levels equivalent to 25% and 50% of the original commercial ration.

Graded levels of vitamin K_1 were also added to a purified basal diet that did not contain sulfaquinoxaline in order to determine if such a diet could be used for assay.

Prothrombin times were determined at four weeks and the reciprocals of the prothrombin times were plotted against the low dose of vitamin K or menadione sodium bisulfite.

The results of the experiments indicated that the purified diet was much more suitable than the practical diet for vitamin K bioassay, since average prothrombin times of the chicks fed the practical ration deviated further from the regression line than did the average prothrombin times of the chicks fed the purified diet.

Furthermore, menadione sodium bisulfite did not appear to completely reverse the elevated prothrombin times caused by sulfaquinoxaline. This may have been due to differences in biological activity on a molecular basis of the two compounds or due to an inherent property of menadione sodium bisulfite. Because of this the vitamin K activity of the ethanol extract of the commercial broiler ration could not be estimated accurately. The commercial broiler ration was estimated to contain between 3.26 micromoles and 4 micromoles of vitamin K per kilogram, or between 56.9 and 63.1 micromoles of menadione sodium bisulfite per kilogram.

A COMPARISON OF THE EFFICACY OF VITAMIN K_1, MENADIONE SODIUM BISULFITE COMPLEX AND MENADIONE IN THE ABSENCE AND PRESENCE OF STRESS AGENTS, Paul Griminger, Rutgers University: Both purified and simplified practical diets have been used for the assay of the relative efficacy of vitamin K-active compounds in chick diets. While the purified diet seemed preferable in the absence of a stress agent, the simplified practical diet was used when such agents were added to the diet.

Using Quick's assay for prothrombin time as a measure of vitamin K sufficiency, vitamin K_1 was found most active, followed closely, on an equimolecular basis, by menadione sodium bisulfite complex (MSBC). Menadione was the least active one of the three compounds tested. With dicumarol as a stress agent, only the natural form of the vitamin accomplished complete reversal of the hypoprothrombinemia induced by this drug. Using 0.2% sulfaquinoxaline, the spread between the activity of menadione and MSBC was increased considerably, but vitamin K_1 was still the most active compound tested. The effect of this level of sulfaquinoxaline was not completely overcome, however, indicating that the action of this drug extends beyond the production of uncomplicated hypoprothrombinemia.

It is concluded, that a simplified practical ration is a desirable test ration for the biological assay of viatamin K-activity, and that vitamin K_1 is the standard of choice, if it can be made available in a stabilized and easily dispersable form.

A COMPARISON OF VITAMIN K_1 AND MENADIONE SODIUM BISULFITE COMPLEX (MSBC) AS STANDARDS IN CHICK DIETS SUGGESTED FOR VITAMIN K ASSAY, Henry S. Perdue, Abbott Laboratories: When added to a modification of the ANRC Reference Chick and Broiler Ration containing 0.1% sulfaquinoxaline (SQ), both vitamin K_1 and MSBC (Klotogen F, Abbott) gave satisfactory responses to graded increases in the amounts added. When the logarithm of the vitamin K added per ton of ration was plotted against the logarithm of the prothrombin time in seconds, essentially parallel regression lines were obtained for vitamin K and MSBC. MSBC appeared about 1.8 times more active than vitamin K_1 when added to this ration. Since MSBC contains 63% menadione sodium bisulfite, U.S.P. (MSB), MSB appears about 2.7 times more effective than vitamin K_1 when added to this ration.

These substances were also compared in a more simplified ration containing 0.1% SQ. The chicks fed this ration averaged only 337 grams at 4 weeks compared with 528 grams for chicks of the same breed which were fed the modified ANRC ration in the earlier test. Since the rate of growth may influence the response of chicks to the vitamin K content of the feed, the poor growth obtained

(Turn to STANDARDS, page 92)

The FEED MARKET

PRICE QUOTATIONS, MARKET TRENDS
OF PRINCIPAL INGREDIENTS

A AND D FEEDING OIL

Chicago: Demand fair; trend steady; supply ample; straight A feeding oil, with 10,000 units vitamin A per gram, 7@7¼¢ a million units of vitamin A, t.c.l., packed in 55-gal. drums, f.o.b. Chicago, drums included.

New York: Demand and supply good; trend firm; price per lb. in 55-gal. drums (413 to 420 lb.): 300 ICU, 750 A 13½@15½¢, 1,500 A 15½@17¢, 2,250 A 17½@20¢, 3,000 A 19@21¢; 600 ICU, 1,500 A 16@18¢, 2,250 A 18@19½¢; f.o.b. Massachusetts, New York or Pennsylvania.

Boston: Demand fair; supply ample; 600 D, 1,500 A 17½¢ lb.; 300 D, 1,500 A 16½¢; 400 D, 3,000 A 20¢; 300 D, 3,000 A 19½¢; 300 D, 750 A 14¾¢; 75 D, 750 A 14½¢.

Minneapolis: Demand fair; supply ample; 10,000 A 34½¢ lb.; 300 D, 2,250 A 19¢ lb.; 300 D, 1,500 A 17½¢ lb.; 300 D, 750 A 16¢ lb.

Denver: Demand fair; trend steady; supply ample; 22¢ lb., f.o.b. Denver.

ALFALFA MEAL

St. Louis: Demand good; trend firm; supply limited; suncured, 13% fine $46.50; dehydrated, 17%, 100,000 A, demand fair, trend firmer, supply ample $60.

Memphis: Demand fair; trend steady to higher; supply ample; dehydrated, 17% protein, guaranteed 100,000 units vitamin A $56.

Chicago: Demand better; trend much higher; supply light; 17% protein dehydrated with 100,000 units vitamin A guaranteed $61.50, carlots.

Los Angeles: Demand fair; trend steady; supply not too plentiful; dehydrated meal, 17% protein, 100,000 A $51@52, bulk; dehydrated pellet meal, 17% protein, 100,000 A $53@54, bulk.; suncured meal, 15% protein $45@46, bulk; suncured crumbles, 15% protein $47@48, bulk.

Cincinnati: Demand poor; trend steady to higher; supply adequate; 17% dehydrated, 100,000 vitamin A $64.50@66.50.

Ft. Worth: Demand fair; supply sufficient; dehydrated, 17%, 100,000 A $63.80 rail, $61@62 truck; suncured 13% ¼-in. grind No. 1 $46@48, truck or rail.

Portland: Demand good; trend higher; supply ample; suncured, 15% $44; dehydrated $65.40.

Omaha: Demand good; trend strong; supply tight; 17% dehydrated, 100,000 A units, bulk pellets $48; sacked meal $53, Omaha basis.

New Orleans: Demand fair; trend firm; supply adequate; vitamin A, 17% $65@66; pellets $60@61.

Philadelphia: Demand and supply fair; 17% dehydrated $62.50.

Boston: Demand fair; supply adequate; dehydrated, 17% $61; suncured, 13% $48.50.

Denver: Demand good; trend strong; supply ample; dehydrated $52, Denver.

Minneapolis: Demand good; supply adequate; trend steady; 17% dehydrated, 100,000 units vitamin A, reground pellets $54@56, bulk, Minneapolis; oiled reground pellets $56@58, sacks $1 more.

Buffalo: Demand poor; trend steady; supply adequate; $63.50, Boston.

Kansas City: Nearly all mills now shut down, except a few in south central area; production disappointing in October, leaving some storage space unfilled; fair demand for feed mixers and good interest from exporters; prices strong and $2 higher this week; dehydrated alfalfa meal with 17% protein and 100,000 units of vitamin A guaranteed on arrival: reground pellets $55 sacked, pellets $50 bulk; dehydrated with 18% protein and 125,000 A $59; dehydrated with 20% protein and 150,000 A $65; suncured demand slow and supplies limited, No. 1 fine ground 13% protein $43@43.50, sacked, Kansas City; No. 1 ¼-in. $38@38.50, No. 2 ¼-in. $35@36.50.

Seattle: Demand fair; trend steady; supply good; 15% protein suncured $45, delivered, truck loads; 136,000 A unit dehydrated $68, delivered, truck loads.

ANIMAL FAT (STABILIZED)

Ogden: Supply normal; 6¢ lb., nominal.

Chicago: Demand and supply good; trend steady; bleachable fancy tallow $6.75 cwt., tank truck or carlot; yellow grease $6.37½ cwt.

Ft. Worth: Demand good; supply moderate; prime tallow, tank cars 6¢ lb.; drums 8½¢ lb.; f.o.b. north Texas packing plants with returnable drums.

San Francisco: Demand fair; supply ample; bleachable fancy 6¼¢ lb.; yellow grease 5¼¢ lb.

New Orleans: Demand fair; trend easy; supply adequate; 6@6½¢ lb., tank cars.

Louisville: Demand slow; trend easy; supply good; poor export demand hurting prices; bleachable white 5⅞¢ lb.; white tallow 6⅜¢ lb.; yellow grease 5⅜¢ lb.

Boston: Demand spotty; supply steady; tallow 6⅜¢ lb.; yellow grease 5⅜¢ lb.

Atlanta: Demand very weak; trend weak; supply ample; 5¢ lb., bulk, f.o.b. Georgia and Alabama producing mills.

St. Paul: Demand good; supply ample; trend steady; bleachable fancy tallow 6⅛¢ lb., f.o.b. producers' plants.

Kansas City: Demand moderate; trend steady; supply ample; 6¢ lb., tank cars, for prime tallow.

BARLEY FEED

New Orleans: Demand slow; trend unchanged; supply ample; $52@53.

Portland: Demand good; supply ample; trend unchanged; rolled $56; ground $54.

Milwaukee: Demand good; supply fair; needles 92¢@$1.04 cwt.; ground screenings $25, Milwaukee.

Los Angeles: Demand better; trend firmer; supply tighter; standard rolled $3.08 cwt.; standard ground $3.08 cwt.

Baltimore: Demand fair; trend steady; supply adequate; $44.50, carlots.

Chicago: Demand fair; trend steady; supply ample; $34, carlots.

Ogden: Supply normal; rolled $46@51; whole barley $38@43.

San Francisco: Demand fair; supply ample; rolled $59; ground $58.

Philadelphia: Demand slow; supply fair; $45.

Boston: Demand slow; supply light; $45.

Denver: Demand and trend steady; supply adequate; rolled $1.90 cwt.

Seattle: Demand and supply good; trend firm; $48, bulk, truck loads.

BLOOD FLOUR

Louisville: Demand slow; trend steady; supply good; $80@85.

BLOOD MEAL

Ogden: Supply average; $92.50 ton in 100-lb. bags, f.o.b. Ogden.

Portland: Demand good; supply ample; trend unchanged; $115.

Omaha: Demand good; trend strong; supply fair; $105, Omaha basis.

Los Angeles: Demand better; supply adequate; trend steady; $5.50 a unit of ammonia.

Chicago: Demand good; trend firm; supply fair; guaranteed 80% protein $120, carlots, 100-lb. sacks.

Louisville: Demand slow; trend firm; supply good; $80@85.

San Francisco: Demand fair; supply ample; $6 a unit of ammonia.

New Orleans: Demand dull; supply adequate; trend steady; $80@85.

Cincinnati: Demand fair; trend steady; supply good; $100, Cincinnati.

BONE MEAL (STEAMED)

Chicago: Demand and supply fair; trend steady; $97.50, carlots, 100-lb. bags.

Los Angeles: Demand better; trend easier; supply limited; imported $77, in 20-ton lots.

Portland: Demand good; supply ample; trend unchanged; $102.

Ft. Worth: Demand good; supply light; $90, f.o.b. Ft. Worth local manufacture.

Louisville: Demand slow; trend steady; supply light; $80@85.

San Francisco: Demand good; supply ample; $75.

New Orleans: Demand fair; trend easy; supply ample; $80@85.

Boston: Demand and supply steady; $100.

Buffalo: Demand good; trend steady; supply limited; $105.

Denver: Demand good; trend firm; supply very tight; $106.70, Denver.

Seattle: Demand good; trend firm; supply limited; $90, delivered, truck lots.

BREWERS DRIED GRAINS

Cincinnati: Demand poor; trend steady; supply adequate; $49.

St. Louis: Demand fair; trend higher; supply ample; $38.

Los Angeles: Demand slow; trend unchanged; supply adequate; $49.50 bulk, $53.50 sacked.

Louisville: Demand fair; trend steady; supply good; $47.

Chicago: Demand good; trend slightly higher; supply fair; 26% protein $42.50, carlots.

San Francisco: Demand fair; supply ample; $54.

New Orleans: Demand fair; trend firm; supply good; $49@50.

Philadelphia: Demand and supply fair; $50.50.

Ft. Worth: Demand slow; supply sufficient; 26% protein $49.50@50.50 immediate; $50@51, October, delivered Ft. Worth.

Boston: Demand fair; supply adequate; 26% bulk $42.50; 22%, Canadian, sacked $51.

Buffalo: Demand fair; trend steady to lower; supply good; $42.50, bulk, Boston.

BREWERS DRIED YEAST

Portland: Demand good; supply ample; trend unchanged; 8½¢ lb.

Cincinnati: Carlots 10¢ lb.; 5-ton lots 11¢ lb.; ton lots 11⅜¢ lb.

Chicago: Demand fair; trend steady; supply ample; 9½@10¢ lb., carlots; 9¾@12¼¢ lb., l.c.l.

Milwaukee: Demand fair; trend steady; supply ample; 10@11¢ lb., carlots; 10½@12¼¢ lb., ton lots.

St. Louis: Demand fair; trend firm; supply ample; 9½@10¢ lb., carlots; 10½¢ lb., ton lots; 11⅛¢ lb., less than ton lots.

Los Angeles: Demand slow; trend unchanged; supply adequate; 10¢ lb., 5-ton lots; 11¢ lb., 1-ton lots; 12¢ lb., less than 1-ton lots.

Omaha: 10½¢ lb.

San Francisco: Demand fair; supply good; 10¢ lb.

Louisville: Demand fair; trend steady; supply good; 10@10½¢ lb.

Boston: Demand and supply steady; 11¢ lb.

Pittsburgh: Carlots 10¢ lb.; 5-ton lots 11¢ lb.; ton lots 11½¢ lb.

New Orleans: Carlots 10¢ lb.; 5-ton lots 11¢ lb.; ton lots 11½¢ lb.

New York: Carlots 9½¢ lb.; 10-ton lots 10¢ lb.; 5-ton lots 10½¢ lb.; ton lots 11¢ lb., f.o.b. New Jersey.

Buffalo: Demand good; trend firm; supply limited; $10.65 cwt.

Denver: Demand light; trend steady; supply ample; 8¢ lb., f.o.b. Golden, Colo.

Seattle: Demand slow; trend steady; supply ample; $12 cwt.

BUTTERMILK-CONDENSED

Ogden: Supply average; $4.40, 100-lb. drum.

New Orleans: Demand slow; trend unchanged; supply adequate; $4.25@4.30 cwt.

Chicago: Demand fair; trend firm; supply adequate; $3.25@3.50 cwt., carlots.

Los Angeles: Demand fair; trend steady; supply adequate; 5½¢ lb. in 100-lb. lots; 4½¢ lb. in 500-lb. lots.

San Francisco: Demand fair; supply good; $5 cwt.

Louisville: Demand dull; trend steady; supply light; $4.25 cwt.

Philadelphia: Demand and supply fair; $4.25 cwt.

Boston: Demand and supply steady; 3¾¢ lb.

CALCIUM CARBONATE

Los Angeles: Demand slow; trend unchanged; supply adequate; flour $10.15, sacked, 20-ton cars; meal $11.15, sacked, 20-ton cars.

Chicago: Demand fair; trend steady; supply ample; fine grind, plain, 100-lb. bags $9.54; bulk, in hopper cars $7.54; bulk, in boxcars $8.04; granular grind $1 premium.

Cincinnati: Demand fair; trend steady; supply adequate; $8@9 cwt.

Seattle: Demand and trend steady; supply good; $14, ex-warehouse, truck lots.

Minneapolis: Fine grind, 50-lb. bags $12.25, 100-lb. bags $11.50; bulk, boxcar $10; bulk, hopper $9.50; coarse grind $1 premium, delivered Minneapolis.

CHARCOAL

Chicago: Demand steady; trend firm; supply ample; $110, carlots, in 50-lb. multiwalls.

Los Angeles: Demand slow; trend unchanged; supply adequate; hardwood poultry $156 in less than ton lots, $144.40 in ton lots.

San Francisco: Demand steady; supply ample; $141.

Boston: Demand and supply steady; $110.

COCONUT OIL MEAL

Los Angeles: Demand slow; trend unchanged; supply adequate; copra cake $70, bulk.

Portland: Demand slow; supply ample; trend unchanged; $71.

San Francisco: Demand good; supply tight; solvent $66.

Seattle: Demand fair; trend firm; supply ample; $79, delivered via truck.

CONDENSED FISH SOLUBLES

Los Angeles: Demand slow; trend unchanged; supply adequate; 4¢ lb.

New Orleans: Demand light; trend easy; supply normal; $60@65, f.o.b. Gulf.

New York: Demand poor; trend steady; supply tight; 2½@2¾¢ lb., f.o.b. eastern shore.

Boston: Demand and supply good; 4¾¢ lb.

Denver: Demand poor; trend steady; supply ample; dried $167, Denver.

CORN OIL MEAL

Cincinnati: Demand fair; trend higher; supply adequate; $46.50.

Louisville: Demand slow; trend steady; supply light; $49.45.

Seattle: Demand fair; trend easy; supply ample; $56, bulk, carlots.

COTTONSEED OIL MEAL

Louisville: Demand slow; trend steady; supply ample; old process $66; new process $64.

New Orleans: Demand slow; supply adequate; trend steady; $68@69.

Philadelphia: Demand and supply fair; trend unsettled; $71.

Chicago: Demand better; trend very strong; supply light; hydraulic $61, carlots, Memphis basis; solvent $59.

Omaha: Demand easy; trend strong; supply tight; 41% solvent $63.20, bulk, delivered Omaha.

St. Louis: Demand good; trend firm; supply limited; solvent $63.

Los Angeles: Demand good; trend firmer; supply adequate; $66@67, bulk.

Cincinnati: Demand fair; trend higher; supply adequate; $65.

Ft. Worth: Demand excellent; offerings very light; 41% old process $65@66; solvent 1% fat added $67.80; pellets $2 additional; cottonseed hulls $17@18, sacked.

Portland: Demand good; trend higher; supply ample; $69.

Memphis: Demand good; trend steady; supply fair; prime 41% protein, old process $61.50; new process, 41% solvent $59.

Ogden: Supply average; 41% $80@85.

Wichita: Demand fair; supply sufficient; 41% old process $67.

San Francisco: Demand good; supply tight; 41% $65; 44% $68.

Boston: Demand slow; supply ample; $72.

Buffalo: Demand poor; trend steady; supply fair; $76, Boston.

Atlanta: Demand good; trend steady; supply ample; 41% $61, sacked, f.o.b. Georgia and Alabama producing mills.

Denver: Demand very good; trend strong; supply limited; 2% fat $67.49, Denver.

Kansas City: Demand good, with export buying a factor in boosting the market sharply; rainy weather is expected to be damaging to the new crop harvest also; old process $62@62.50, sacked, Memphis; solvent $60@60.50, sacked.

Seattle: Demand good; trend firm; supply limited; 41% expeller process $77, delivered truck lots.

D ACTIVATED ANIMAL STEROL (POWDERED)

New York: Demand and supply good; trend firm; price per lb. in 50- and 100-lb. bags or 100-lb. drums: 1,500 ICU 8@12¢ bagged, 12@13¢ drums; 3,000 ICU 13@17¢ bagged, 17@18¢ drums; f.o.b. or delivered basis Pennsylvania, Delaware or New York.

Cincinnati: Demand fair; trend steady; supply ample; 1,500 ICU 11@12¢ lb.; 3,000 ICU 18¢ lb., warehouse.

Kansas City: Demand fair; trend steady; supply adequate; 1,500 ICU 9⅝¢ lb.; 3,000 ICU 11½¢ lb.

D ACTIVATED PLANT STEROL (POWDERED)

Chicago: Demand fair; supply ample; 4,000,000 U.S.P. units per lb., 15¢ lb. in ton lots, less than ton lots 17¢ lb.; 12,000,000 units per lb., 5 tons to a carload 28¢ lb., ton lots and less 30¢ lb.

DISTILLERS DRIED GRAINS

Cincinnati: Demand poor; trend steady; supply adequate; $46.50.

Louisville: Demand fair; trend steady; supply ample; bourbon: light $45@46, dark $50@51, solubles $77.

Philadelphia: Demand slow; supply light; $56.

Boston: Demand fair; supply adequate; Canadian medium in bulk $50; Canadian dark, sacked $52.

San Francisco: Demand fair; supply ample; solubles $85.

Buffalo: Demand and supply fair; trend steady to higher; $51, bulk, Boston.

Seattle: Demand good; trend steady; supply limited; $68.50, delivered, truck lots.

DRIED BEET PULP

Milwaukee: Demand good; supply fair; plain $43, molasses $43.

San Francisco: Demand good; supply fair; $42.80, bulk.

New Orleans: Demand fair; supply adequate; trend unchanged; $53@54.

Ft. Worth: Demand slow; supply moderate; carlots, 50-lb. papers $49.20, immediate or October-November-December, delivered Ft. Worth.

Portland: Demand good; supply ample; trend unchanged; $56.40.

Ogden: Supply normal; new crop moving into market; $44@48.

Los Angeles: Demand fair; trend unchanged; supply adequate; $47.80@48.60.

Boston: Demand and supply steady; $51.

Seattle: Demand good; trend steady; supply limited; $50, delivered, carlots.

Denver: Demand good; trend steady; none available.

Buffalo: Demand and supply fair; trend steady; $51, Boston.

Atlanta: Demand fair; trend steady; supply good; $54.50, delivered.

DRIED BUTTERMILK

Ogden: Supply average; $8.50, 100-lb. bag.

Chicago: Demand fair; trend steady; supply ample; medium acid $10.75@10.85 cwt., sweet cream $11@11.25 cwt., carlots.

Los Angeles: Demand slow; trend steady; supply adequate; 12¢ lb.

Milwaukee: Demand and supply fair; $10.50 cwt.

Louisville: Demand slow; trend firm; supply ample; 11½@12¢ lb.

San Francisco: Demand fair; supply ample; 11½¢ lb.

New Orleans: Demand fair; trend easy; supply good; $11.50@12 cwt.

Buffalo: Demand good; trend firm; supply limited; $11.85 cwt.

DRIED CITRUS PULP

New Orleans: Demand fair; trend easy; supply normal; $32.50@35, f.o.b. Florida points.

San Francisco: Demand and supply fair; meal $49.

Los Angeles: Demand steady; trend unchanged; supply not too plentiful; orange pulp $41, bulk; lemon pulp $40, bulk.

Boston: Demand slow; supply ample; $51.

Buffalo: Demand poor; trend steady; supply fair; $32.50, Boston.

Atlanta: Demand fair; trend steady; supply good; meal $27.50, pulp $32.50, f.o.b. Florida producing plants.

DRIED SKIM MILK

Portland: Demand good; supply ample; trend unchanged; 13¢ lb.

Cincinnati: Demand fair; trend steady; supply adequate; 10½@10¾¢ lb.

Ogden: Supply average; $15.15, 100-lb. drum.

Milwaukee: Demand and supply fair; $10.50 cwt.

Los Angeles: Demand fair; trend steady; supply adequate; 14¢ lb. in less than ton lots; 13¾¢ lb. in ton lots.

Chicago: Demand and supply fair; trend steady; $10.50@10.75 cwt., carlots.

San Francisco: Demand and supply fair; 13½¢ lb.

New Orleans: Demand dull; trend unchanged; supply ample; $11.50@12 cwt.

Philadelphia: Demand and supply fair; $12.50 cwt.

Louisville: Demand fair; trend firm; supply ample; 11½@12¢ lb.

Boston: Demand good; supply tight; 12¢ lb., nominal.

Minneapolis: Demand good; supply scarce; trend strong; up 25@50¢ to $11.75@12.

Buffalo: Demand good; trend firmer; supply limited; spray $11.25 cwt.

DRIED WHEY

Portland: Demand good; supply ample; trend unchanged; $6.80 cwt.

Cincinnati: Demand fair; trend steady; supply adequate; $6.15 cwt.

Chicago: Demand good; trend firm; supply fair; $5.50@5.70 cwt., carlots, f.o.b. plant.

Ogden: Supply normal; $6.90, 100-lb. bag.

Los Angeles: Demand slow; trend easier; supply adequate; $5.93 cwt., carloads; $6.23 cwt., l.c.l.

NOTE: Quotations on feed ingredients shown in these and adjoining columns are wholesale prices, per ton, bagged, for prompt delivery, unless otherwise noted. They are the latest quotations available from Feedstuffs correspondents and are not necessarily those in effect on date of publication. The prices represent fair average trading values and do not necessarily represent extreme low or high levels at which individual sales might have occurred. A descriptive summary of supply and demand factors prevalent in the feed market appears on page 2.

Philadelphia: Demand and supply fair; $6.50 cwt.
Louisville: Demand fair; trend steady; supply ample; 6¼¢ lb.
San Francisco: Demand steady; supply good; $5.75 cwt.
New Orleans: Demand good; trend easy; supply ample; $6@6.50 cwt.
Wichita: Demand light; supply ample; $6.50 cwt.
Ft. Worth: Demand fair; supply adequate; carlots, standard $6, sacked, delivered Ft. Worth; $6.25 ton lots, f.o.b. warehouse Ft. Worth.
Boston: Demand and supply steady; 5½¢ lb., f.o.b. shipping points.
Minneapolis: Demand good; supply tight; steady at $5.50 cwt.
Denver: Demand fair; trend steady; supply ample; $6.50 cwt.
Kansas City: Demand fair; trend steady; supply moderate; regular or partially delactosed $5.50 cwt., producers' points.
Seattle: Demand and trend steady; supply good; $6.40 cwt., ex-warehouse, l.c.l.

FEATHER MEAL (HYDROLYZED)

Los Angeles: Demand slow; trend unchanged; supply adequate; $1 a unit of protein.
Ft. Worth: Demand fair; supply sufficient; 85% to 87% protein $80@$2.50, f.o.b. trucks, north Texas plants.
Boston: Demand steady; supply tight; $85, nominal.
Salisbury, Md.: Demand spotty; supply adequate; $88, f.o.b.

FISH MEAL

Ft. Worth: Demand fair; supply sufficient; 60% menhaden $139, prompt; 65% Peruvian $136, October, delivered Ft. Worth.
Portland: Demand slow; supply ample; trend unchanged; $2.10 a unit.
Cincinnati: Demand fair; trend steady; supply adequate; $160.
Minneapolis: Demand fair; supply adequate; market steady; Gulf menhaden $146; 60% blended $146@148; 70% herring $2.05 a unit, f.o.b. West Coast.
Ogden: Supply normal; $2.20 a unit, f.o.b. Coast; 65% $166@168.
Omaha: Demand fair; trend good; supply ample; 60% menhaden $140.
Chicago: Demand quiet; trend steady; supply good; eastern menhaden $120@125 and scrap $116@121, carlots; Gulf menhaden $128@130 and scrap $124@126, carlots.
Los Angeles: Demand slow; trend much weaker; supply adequate; local production, 60% protein $1.85 a unit.
Milwaukee: Demand good; supply fair; 60% $160.
Louisville: Demand slow; trend steady; supply light; $145@150, nominal.
San Francisco: Demand slow; supply ample; $190 a unit of protein.
New Orleans: Demand fair; trend steady; supply good; menhaden 60% $128@130, scrap $124@126, f.o.b. Gulf.
Boston: Demand and supply steady; $125.
Seattle: Demand and supply good; trend easy; $2 a unit protein, ex-dock (Alaskan).
Buffalo: Demand just fair; trend steady; supply ample; 60% protein menhaden $138 bulk, $143 sacked.
Denver: Demand poor; trend steady; supply ample; $2.15 a unit of protein, f.o.b. West Coast.
Atlanta: Demand weak; trend weak; supply good; 60% menhaden $122, f.o.b. Atlantic and Gulf ports.

HOMINY FEED

Memphis: Demand poor; trend steady; supply ample; white $42; yellow $42.
St. Louis: Demand slow; trend steady; supply ample; yellow $43.50.
Chicago: Demand good; trend higher; supply fair; $41.50@42, carlots.
Milwaukee: Demand good; supply fair; $41@42, Chicago.
Cincinnati: Demand poor; trend steady; supply adequate; $45.
Louisville: Demand slow; trend steady; supply light; $44.50.
New Orleans: Demand slow; supply ample; trend steady; $47@48.
Boston: Demand cautious; supply plentiful; $46@47, bulk.
Seattle: Demand fair; trend steady; supply limited; $55, delivered, carlots.
Buffalo: Demand and supply fair; trend steady to lower; $47, bulk, Boston.
Kansas City: Demand fair; trend easier; supply light; yellow $35@36 bulk, white $1 less.

LINSEED OIL MEAL

Minneapolis: Demand good; supply limited because of short flax crop; trend strong; new process up $2 to $70; old process up $1 to $75.50.
Ft. Worth: Demand slow; offerings light; 34% protein: solvent $93.50 truck, old process $95@96 truck.
Cincinnati: Demand poor; trend higher; supply adequate; new process $89; old process $94.
Chicago: Demand improved; trend higher; supply fair; solvent $69.50, carlots, Minneapolis basis; expeller $75.50.
Omaha: Demand slow; trend strong; supply tight; 34% solvent $75.30, bulk; 32% old process $80.30, Omaha basis.
Los Angeles: Demand moderate; trend steady; supply adequate; local production, 29% protein $71, bulk.
Milwaukee: Demand good; supply fair; old process $85; new process $80.
Louisville: Demand slow; trend strong; supply ample; old process $94; new process $89.50.
Philadelphia: Demand and supply fair; 34% $92.
Portland: Demand slow; supply ample; trend unchanged; $86.
San Francisco: Demand fair; supply ample; $74.50.
New Orleans: Demand slow; supply ample; trend steady; $77.50@78.
Wichita: Demand fair; supply sufficient; 34% $89.20.
Boston: Demand slow; supply ample; $87.50.
Seattle: Demand fair; trend steady; supply limited; 34% protein (Montana) $90, delivered, carloads.
Denver: Demand poor; trend strong; supply tight, small crop; $88.94.
Kansas City: Demand slow in this area because of high price; trend firm; solvent $70@70.50, bulk, Minneapolis; old process $76.50.

MEAT AND BONE MEAL

San Francisco: Demand fair; supply ample; $1.50 a unit of protein.
New Orleans: Demand slow; trend easy; supply ample; $80@85.
Ft. Worth: Demand good; supply moderate; meat and bone, 50% $77@79, f.o.b. or delivered Ft. Worth.
Cincinnati: Demand good; trend strong; supply fair; 50% meat and bone scraps $79.50, Cincinnati.
Louisville: Demand slow; trend firm; supply good; $80@85.
St. Louis: Demand fair; trend lower; supply ample; $77.
St. Paul: Demand poor because of shift in feed volume toward dairy and cattle feeds; supply ample; trend weaker; down $2@3 from last week $75@80.
Ogden: Supply normal; $87.50 ton in 100-lb. bags.
Chicago: Demand good; trend steady; supply adequate; 50% protein $85, carlots.
Omaha: Demand and trend good; supply ample; $80.
Los Angeles: Demand good; trend steady; supply moderate; 50% protein $1.60 a unit, bulk.
Portland: Demand slow; supply ample; trend unchanged; $1.45 a unit of protein.
Wichita: Demand good; supply sufficient; 50% $90, f.o.b. plant; 55%, no quotations, no offerings.
New York: Demand and supply fair; trend steady; 50% $65, 55% $72.50, bulk; 50% $68, 55% $75.50, sacked.
Boston: Demand fair; supply ample; $1.10 a protein unit; converted 50% $67.50.
Seattle: Demand good; trend steady; supply ample; 50% protein $80, ex-warehouse.
Buffalo: Demand just fair; trend steady; supply ample; 50% meat scraps $72.50 bulk, $77.50 sacked.
Denver: Demand slow; trend steady; supply ample; 50% $72.50, bagged, ton, truck lots; $70 ton, bulk lots.
Kansas City: Demand fair to good; trend easier; supply improving as kills increase; 50% meat and bone meal $72.50@73, bulk.

MILLFEED

Minneapolis: Demand fair; supply ample; trend slower; middlings down $2@2.50 to $34@34.50; bran steady to 50¢ lower at $33.50@34; little trading in red dog, down $1.50@2.50 at $41@42.
Kansas City: Demand good for sacked bran, fair for middlings and shorts; mill offerings ample, except for sacked bran which is hard to buy; good export sales of flour indicate higher running time for mills in next few weeks; bran $34.75@35.50, shorts $38@38.75, sacked; bran $30.25@31, middlings $30.50@31.25, shorts $34.50@35.25, bulk.
Wichita: Demand good for bran, fair for shorts; supply adequate for bran, ample for shorts; basis Kansas City: bran $34.50@35, shorts $40@40.50; bran advanced 25¢, while shorts declined $2.75, compared with the preceding week.
Ft. Worth: Demand poor; liberal offerings; carlots, burlaps, bran $43, gray shorts $47.50; bulk middlings $41.50, delivered Texas common points; about unchanged on bran; $4.50 lower on shorts and $7.85 lower on middlings compared with previous week.
Chicago: Offerings of bran and standard midds. increased materially, resulting in a downward price adjustment to correct the artificial situation that had existed earlier this month. Red dog prices held just about on a par with a week ago. Quotations: Chicago basis, ton, carlots—standard bran, sacked $38.50 and bulk $33.50, nominal; standard midds., sacked $39.50 and bulk $34; red dog, sacked $47.50 @48.50 and bulk $44.
St. Louis: Sacked, bran $40.25@40.75, shorts $43.50@44; bulk, bran $35@35.50, shorts $39.50@40, middlings $35.50@36.
Cincinnati: Demand poor; trend steady to lower; supply adequate; bran $43, middlings $47.
Omaha: Demand slow; trend easy; supply ample; sacked bran $35; sacked gray shorts $41; bulk standard midds. $34, all Omaha basis.
Boston: Demand spotty; supply clearing; bran $46.50@47.50, middlings $48.50.
Buffalo: Sacked bran and middlings bottomed out as levels reached a point that attracted country trade replacement buying. Shipping positions became nominal and sacked differential rose from a low of $4.50 to $5.50. Mixers' business has not picked up and bulk bran and middlings continue to work lower. Local levels were free from any western competition. Bulk bran ended the week $4.50 lower, sacked was down $4; bulk middlings declined $7 and sacked dropped $5.50; red dog, bulk and sacked, held unchanged. Quotations Oct. 14: bulk bran $30@31, sacked $36.50; bulk middlings $34@35.50, sacked $40.50; bulk red dog $46@46.50, sacked $50.50.
New York: Demand fair; trend lower; supply good; bran $44@44.50, standard midds. $47@47.50.
Philadelphia: Demand slow; trend unsettled; supply fair; bran $46, standard midds. $49, red dog $57.50.
New Orleans: Demand fair; trend easy; supply ample; sacked, bran $45.75@46.50, shorts $54.50@55.25; bulk, bran $42.50@43.25, shorts $50.50@51.25, middlings $48.75@49.25.
Memphis: Demand poor; trend weak; supply ample; wheat bran $41.50, sacked; gray shorts $47.80, sacked; standard midds. $39.70, bulk.
Louisville: Demand fair; trend easy; supply good; bran $45.85, mixed feed $48.85, shorts $51.60, middlings $47.30.
Seattle: Demand fair; trend steady; supply limited; $45, delivered, common transit points, carlots.
Portland: Demand good; trend higher; supply ample; $42.
Ogden: Supply normal; to Utah and Idaho: red bran and mill run $41, middlings $46; to Denver: red bran and mill run $48, middlings $53; to California: red bran and mill run $48.50, middlings $53.50, f.o.b. San Francisco and Los Angeles.
Denver: Demand fair to good; trend steady; supply adequate; shorts $43.75, bran $38, mill run $41.
San Francisco: Demand good; supply tight; millfeed $48.50; red bran $53.50.
Los Angeles: Standard mill run $49@50, bulk, brisk demand, firmer trend, light supply for nearby; red bran $49.50@50, bulk, steady demand, firmer trend, supplies not too plentiful.

MINERAL FEED

Ogden: Supply normal; $113 ton in 50-lb. blocks; $103 ton, granular, 50-lb. bags.
Ft. Worth: Demand good; supply sufficient; all-purpose granules $90, block $97; mineral phosphorus, 6% granules $106, block $113; cattle-sheep mineral 7% phosphorus granules $100, block $107; hog mineral phosphorus 3½% granules $87, phosphorus 2% $77 (all in 50-lb. paper bags).
Portland: Demand good; supply ample; trend unchanged; $45.
San Francisco: Demand steady; supply good; all-purpose with iodine $70.
Wichita: Demand good; supply sufficient; all-purpose with iodine, 50-lb. blocks $97.50, 100-lb. bags $92.50, f.o.b. plant.
Sioux City: 50-lb. mineral blocks 8.2% phosphorus $92; 7.5% phenothiazine sheep mineral blocks $4 each.
Denver: Demand fair; trend steady; supply ample; $155.
Seattle: Demand fair; trend steady; supply good; mixer mineral $48, ex-warehouse; all-purpose mineral $85, ex-warehouse.

MOLASSES

Cincinnati: Demand fair; trend steady; supply adequate; 10¢ gal., New Orleans.
Ft. Worth: Demand improving; supply sufficient; blackstrap 11¼¢ gal., f.o.b. Houston; delivered Ft. Worth, truck $25.94, seller's market price on date of shipment.
Memphis: Demand poor to good; trend weak to firm; supply ample; blackstrap 9½@10¢ gal., tank car, f.o.b. New Orleans, and $24.50@25 ton, delivered Memphis, truck.
Minneapolis: Demand fair; trend steady; supply adequate; $30.50, tank trucks, delivered.
New York: Demand fair; trend steady; supply good; blackstrap 15¢ gal., tank cars, tank wagons, f.o.b. New York.
St. Louis: Demand slow; trend steady; supply ample; 10¢ gal., New Orleans.
Louisville: Demand fair; trend stronger; supply normal; 10½¢ gal., tank car lots, f.o.b. Gulf ports.
Los Angeles: Demand good; trend steady; supply adequate; $20, bulk, f.o.b. tank cars; $20.25, bulk, f.o.b. tank trucks.
San Francisco: Demand and supply good; $20, f.o.b. cars Richmond, Cal.
New Orleans: Demand good; supply ample; trend steady; 10¢ gal., tank cars and trucks; 600-lb. customers' drums $7.05.
Boston: Demand steady; supply plentiful; 16½¢ gal. in tank cars.
Seattle: Demand fair; trend easy; supply good; $20.25, f.o.b. Seattle, tank car lots or truck lots.
Denver: Demand fair; trend firm; supply ample; 10½¢ gal., New Orleans; $17.95 ton, New Orleans; $20 ton, West Coast.
Buffalo: Demand fair; trend steady; supply adequate; 16½¢ gal., f.o.b. Albany.
Atlanta: Demand fair; trend steady; supply good; citrus $16@17, bulk, f.o.b. Florida producing plants.
Kansas City: Demand fair to slow; trend about steady; supply adequate, with new crop Louisiana production on the way; 10¢ gal., tank cars, New Orleans.

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OAT PRODUCTS

Los Angeles: Demand slow; trend firmer; supply limited; local production, pulverized $63.

Louisville: Demand fair; trend strong; supply ample; reground $23.80, rolled $86.30, feeding $78.80, pulverized white $52.30, crimped white $69.30.

Philadelphia: Pulverized whites, demand slow, supply fair $53; domestic, demand slow, supply light $27; Canadian oat feed demand slow, supply fair $26.

Memphis: Demand poor; trend steady; supply light; 3½% protein, reground oat feed $23.25.

Cincinnati: Demand poor; trend steady; supply adequate; reground oats $30; pulverized white oats $55.

Minneapolis: Demand spotty this week, mostly from Southeast, but moderately improved; price increase result of cattle feed bookings covered by larger mills; feeding rolled steady to $1 stronger at $81@83; feeding oatmeal up $1 to $68@70; standard pulverized up $1.50 to $46; crimped up 50¢ to $61; reground oat feed steady at $16@18; futures for November and December $1 over spot for each month; high protein oat feed $31.50.

Chicago: Demand good; trend steady to higher; supply fair; reground oat feed $16@16.50, No. 1 fine ground feeding oatmeal $79, feeding rolled oats $79@82, carlots.

Portland: Demand good; supply ample; trend unchanged; rolled $65, ground $63, cleaned $66.

Boston: Demand slow; supply ample; white pulverized $56, reground oat feed $21.50.

Seattle: Demand good; trend firm; supply fair; $54, bulk, delivered, truck lots.

POTASSIUM IODIDE, U.S.P.

Cincinnati: Demand good; trend steady; 90% KI in calcium stearate or carbonate mixtures: 250-lb. drums $1.35; 200 lb. in 100-lb. drums $1.35; 100-lb. drums $1.38; 25-lb. drums $1.41, f.o.b. Cincinnati.

POULTRY BY-PRODUCTS

Los Angeles: Demand good; trend unchanged; supply adequate; $1.40 a unit of protein.

Atlanta: Demand very weak; supply ample; trend weak; feather meal $78, f.o.b. Georgia and Alabama producing mills.

Salisbury, Md.: Demand good; supply adequate; Delmarva poultry meal $90, f.o.b.

Atlanta: Demand very weak; trend weak; supply ample; meat meal $75.50, f.o.b. Georgia and Alabama producing mills.

Ft. Worth: Demand excellent; supply extremely scarce; 55% protein $82.50@85, f.o.b. north Texas plants.

Boston: Demand fair; supply improved; $81.

RIBOFLAVIN

New York: Trend steady; feed grade (in feed supplements) 4½¢ gm. in 3.36 to 16 gm./lb. mixtures, freight prepaid or paid to destination.

Cincinnati: Trend steady; feed grade (in feed supplements) 4¢ gm. in less than ton lots, in 3.36 to 16 gm./lb. mixtures; 3¢ in ton lots or more; freight prepaid or paid to destination.

SCREENINGS

Cincinnati: Demand fair; trend steady; supply adequate; ground oat screenings $19.

Chicago: Demand improved; trend higher; supply fair; ground grain screenings $31@31.50, carlots; Canadian $24.90.

Buffalo: Demand fair; trend steady to higher; supply fair to poor; ground, sacked $35.50, New York, lake and rail; unground, bulk $29.50, New York.

Minneapolis: Trend stronger because of limited supply; Canadian up $1 to $22; domestic lights up $3@4 to $10@15; mediums up $3 to $16@25; heavies up $3 to $26@30; flax screenings, basis 14%, up $1 to $41.

Ft. Worth: Demand good; supply limited; ground mixed grain $33.50.

SORGHUMS

Los Angeles: Demand good; trend firmer; supply tighter; milo $2.15 cwt., bulk.

Ogden: Supply normal; milo $42@43.

Ft. Worth: Demand excellent; offerings light due to rains delaying the harvest; carlots, bulk, No. 2 yellow milo $1.96@1.98, delivered Texas common points.

Seattle: Demand and supply good; trend steady; milo $48, bulk, carloads.

SOYBEAN OIL MEAL

Kansas City: Demand fair to good for spot; no trading in forward shipment, since buyers expect lower levels and mills do not want to offer much lower levels; improved weather condition for bean harvest was the principal factor in some weakness this week; meal for Kansas City shipment $55.50@56, bulk, Decatur, for spot shipment; $54.50@55 for next week and $54 for last week in October.

Denver: Demand poor; trend steady; supply ample; $75.14, Denver.

Atlanta: Demand fair; trend steady; supply limited; 44% $66.60, bulk, delivered.

Ft. Worth: Demand good; limited offerings for immediate shipment; carlots: 44% $70.30@73.40 October to first half November, $69.30@72.40 last half November to December; 50% protein $78.90@81.90 October to first half November, $77.40@80.40 last half November to December; truck: 44% $70.50@71.50, 50% $79@80 October.

San Francisco: Demand good; supply ample; $78.40.

New Orleans: Demand slow; supply ample; trend steady; $66@67.

Portland: Demand fair; trend higher; supply ample; $53, f.o.b. Decatur.

Philadelphia: Demand and supply fair; 44% $55, bulk, Decatur.

Wichita: Demand good; supply fair; 44% $68, 50% $76, f.o.b. Wichita.

Minneapolis: Demand good; supply better due to improved harvesting weather; price leveling off at $50@51, bulk, Decatur, for delivery to Minneapolis.

Chicago: Soybean oil meal continued to advance during the week ending Oct. 14. More talk about the drouth situation current in many European countries brought up visions of a possible heavy export demand for these concentrates. Soybean oil meal futures were on the upward trend, especially in the October delivery which sold as high as $56.80 at one time on Oct. 13, although dipping almost $2 ton since then. Soybeans continued to climb and sold at the highest price in nearly three months, inspired largely by the bad weather for combining and other field operations. About the only bearish item on beans and the product was word from Washington that USDA had decided it had over-estimated the potential crushing needs the previous week at 425 million bushels for the 1959-60 season. USDA now has lowered the figure to 400 million bushels, which some people in the trade feel is still too high. Quotations: Decatur basis, ton, carlots—44% protein, unrestricted billing $58 and eastern restricted $54.50; 50% protein, unrestricted billing $63.50 and eastern restricted $59.50.

St. Louis: Demand fair; trend steady; supply limited; 44% $66.

Ogden: Supply average; $84@89.

Omaha: Demand fair; trend easy; supply ample; 44% $66.60, bulk, delivered Omaha.

Los Angeles: Demand steady; trend firm; supply tight; $79.90, bulk.

Milwaukee: Demand good; supply fair; $56.50, bulk, Decatur.

Cincinnati: Demand poor; trend higher; supply adequate:; $58, bulk, Decatur.

Memphis: Demand good; trend firm; supply small; prime 44% solvent $68, f.o.b. Memphis.

Louisville: Demand fair; trend strong; supply normal; old process $68.70.

Boston: Demand good; supply steady; 44% $54, 50% $59, both f.o.b. bulk, Decatur.

Seattle: Demand fair; trend strong; supply ample; $84, delivered, carlots.

TANKAGE

Ft. Worth: Demand fair; supply short; 60% digester $80, Ft. Worth.

Omaha: Demand good; trend good; supply ample; $80.

St. Louis: Demand fair; trend lower; supply ample; $77.

Kansas City: Demand fair to good; trend easier with supplies picking up somewhat; 60% digester $72.50@73, bulk.

St. Paul: Demand poor because of shift in feed volume toward dairy and cattle feeds; supply ample; trend weaker; down $3@4 from last week to $77@80.

Chicago: Demand good; trend steady; supply ample; 60% protein $35, carlots, in 100-lb. sacks.

New Orleans: Demand fair; trend steady; supply light; $92@93.

Louisville: Demand slow; trend steady; supply ample; $85@90.

Cincinnati: Demand good; trend steady; supply ample; 60% digester $81.50, Cincinnati.

Wichita: Demand good; supply sufficient; 60% $90, f.o.b. plant.

VITAMIN E FEED SUPPLEMENT

New York: Demand and supply good; trend steady; 100-lb. drums $1.50 lb., 25-lb. drums $1.55 lb., f.o.b. manufacturing plants, freight allowed and goods insured to destination.

Rochester, N.Y.: Demand and supply good; trend steady; 100-lb. drums $1.50 lb., 25-lb. drums $1.55 lb., f.o.b. manufacturing plants, freight allowed and goods insured to destination.

Cincinnati: Demand good; trend steady; any quantity in 100-lb. drums $1.50; in 25-lb. drums $1.55; freight allowed to destination.

WHEAT GERM MEAL

New Orleans: Demand fair; trend steady; supply ample; $58@60.

Minneapolis: Demand fair to good; supply ample; trend steady; $49.

Buffalo: Demand fair; trend steady; supply poor; commercial grade $56, f.o.b. Buffalo.

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STANDARDS

(Continued from page 89)

with the simplified ration will probably handicap its use as a standard chick ration for vitamin K assay.

Nevertheless, when the data were plotted as before, straight lines were obtained for vitamin K, and MSBC. In this case, however, the lines diverged with increases in the amounts added to the basal ration. Thus, no constant ratio of vitamin K activity of the two substances was obtainable. It was noted, however, that vitamin K appeared more active than MSBC in this experiment. This contrasts with the results obtained using the modified ANRC ration where more adequate growth was obtained and MSBC was more active than vitamin K_1.

The results of a pilot assay using MSBC as the standard and the modified ANRC ration with 0.1% SQ will be reported. This will include the results of applying this assay procedure to several commercial feeds.

THE RELATIVE BIOPOTENCIES OF VARIOUS FORMS OF VITAMIN E, Dr. Lloyd D. Matterson, Dr. W. Pudelkiewicz and Miss Martha Dicks, University of Connecticut: A description of the activity of seven forms of dl-tocopherol acetate was presented. Studies on the correlation of chemical assays with biological assays were described.

COLLABORATIVE EVALUATION OF THE PROPOSED ANRC VITAMIN A REFERENCE STANDARD, Dr. Stanley R. Ames, Distillation Products Industries: The proposed ANRC Vitamin A Reference Standard, Batch 1, is a gelatin-stabilized oil solution of all-trans-vitamin A acetate at a potency of about 10,000 units/gram. It was prepared from the USP Vitamin A reference Solution (100,000 units/gram), gelatin, sucrose and stabilized with a mixture of BHA and BHT. Preliminary studies of this product showed it to have excellent stability and high biological availability. Since it is prepared from highly purified all-trans-vitamin A acetate, the isomer composition is known and the results of the chemical analysis can be easily translated into biological activities. The proposed ANRC Vitamin A Reference Standard was sent to the analytical laboratories of DPI, Hoffmann-La Roche, Pfizer, and FDA. Based on the mean of the data obtained by these laboratories, Batch 1 was assigned a potency of 9,250 units/gram.

Collaborators were requested to compare the proposed standard with other vitamin A sources such as the USP Vitamin A Reference Solution, all-trans-vitamin A palmitate in oil, one or more types of dry vitamin A and fish oil. Some of the data requested included shelf life, stability in mixed feeds at various temperatures, and oral supplementation liver-storage, diet supplementation liver-storage and growth bioassays. While the initial emphasis has been on chicks, we hope to obtain data on other species as well.

James C. Fritz, Dawe's Laboratories: The proposed ANRC vitamin A reference standard was compared with another thoroughly assayed dry vitamin A preparation by three bioassay techniques: (1) Four week chick growth was measured when the diet was supplemented with 200, 400, 800, or 1600 units per lb. (2) Liver storage tests were made following a seven-day feeding period when the diet was supplemented with 10,000 or 25,000 units per lb. (3) Liver storage was measured following the single feeding by capsule with 2,000 or 4,000 units per chick. By each technique a graded response, according to dose, was obtained with each supplement. The proposed ANRC vitamin A reference standard compared favorably with the reference material previously used in this laboratory.

H. L. Witz and J. P. Mattingly, General Mills, Inc.: The Technical Projects Committee of the Animal Nutrition Research Council considers that the presently available standard for Vitamin A is inadequate for some bioassay procedures. A proposed ANRC standard was, therefore, evaluated by our laboratory along with other collaborating laboratories.

Tests were conducted comparing the availability and stability of the proposed ANRC Reference Standard with a USP Reference Standard and with commercial vitamin A supplements. These comparisons involved the feeding of a "low vitamin A supplementation," "high vitamin A supplementation," and "oral vitamin A supplementation."

Our results indicated that the proposed ANRC Reference Standard possessed the necessary characteristics of an ideal reference standard. More collaborative work should be conducted, though, to further refine bioassay testing procedure.

Stanley R. Ames, Distillation Products Industries: Batch 1 of the proposed ANRC Vitamin A Reference Standard was compared with the USP Vitamin A Reference Solution, all-trans-vitamin A palmitate in oil, a gelatin-type dry vitamin A product, a fat-type dry vitamin A product, and fish oil. When mixed in feed, the proposed ANRC standard was as stable as the gelatin-type dry vitamin A preparation and more stable than the other preparations tested. In an oral-supplementation slope-ratio liver-storage bioassay, the proposed ANRC standard and the USP Vitamin A Reference Solution gave equivalent responses. In several diet-supplementation liver-storage bioassays, the proposed ANRC Standard gave uniform responses and was superior to all-trans-vitamin A palmitate in oil, a fat-type dry vitamin A product and fish oil.

Based on the available data, the proposed ANRC Vitamin A Reference

TOP OF THE HOPPER

(Continued from page 2)

body moving into the other fellow's backyard. An extended period of overproduction likely will prevail.

"Next step: Getting the eggs marketed. Though you may consolidate production of hatching eggs, chicks, feed and market eggs under one management, you still haven't solved the profit problem until you sell something to someone."

▼ ▼

TO SET THE RECORD STRAIGHT, J. D. Sykes, vice president of Ralston Purina Co., has not gone back to being an extension poultryman in the South. Readers of last week's Feedstuffs may have wondered about the identification of J. D. which appeared in a story describing the program of the Michigan Feed & Grain Dealers Assn. on which he was to appear. Our story (and we haven't yet figured out how the error crept in) said Mr. Sykes is an extension poultryman in Alabama and Mississippi. Had the story run several years ago, it would have been more accurate. J. D. did work nine years as an extension poultryman, but he's been with Purina since 1941 and may be found at Checkerboard Square whenever he isn't off to an industry meeting somewhere, which is frequently. The affable Mr. Sykes got a chuckle out of our "goof," but we wanted to correct the possible puzzlement of other readers.

Standard meets the criteria established for ANRC reference standards. Its adoption as the ANRC Vitamin A Reference Standard is recommended.

STUDIES OF CHOLESTEROL AND BILE ACID METABOLISM USING TRACER TECHNIQUE, Dr. Daniel Steinberg, National Institutes of Health: Attempts to determine directly the daily excretion of fecal sterols and bile acids are frustrated by: (1) The dietary contribution of vegetable sterols difficult to distinguish from cholesterol; (2) conversion of sterols and bile acids to other chemical forms by the action of intestinal flora. These difficulties have been circumvented by introducing radioactive cholesterol intravenously in combination with serum lipoproteins.

It has been shown that the specific radioactivity of the fecal sterols and bile acids parallels that of the serum cholesterol. This has permitted the calculation of net excretion of both classes of compounds as a group from a knowledge of the total radioactivity excreted and the specific radioactivity of the serum cholesterol. Using this method it has been shown that excretion of cholesterol per se is an important pathway in man. No important influence of the nature of dietary fat on sterol or bile acid excretion has been found. The possible generality of the approach used will be discussed.

THE INTACT PERFUSED ORGAN AND POSSIBLE APPLICATION OF THIS TECHNIQUE TO NUTRITION RESEARCH, Dr. Leon L. Miller, University of Rochester: The technique of isolated organ perfusion briefly reviewed from the historical point of view. Technical advances, including the use of anticoagulants, non-wettable surfaces and isotopically labelled metabolites and their effect on the development of modern perfusion techniques, summarized. Specific applications of brain, kidney, hind limb, heart and liver perfusions presented. Potential application to problems in nutrition research discussed.

THE NUTRITION AND METABOLISM OF HUMAN AND ANIMAL CELLS IN CULTURE, Dr. Harry Eagle, National Institutes of Health: A number of cell strains deriving from normal and malignant tissues have been studied with respect to nutritional requirements and biosynthetic pathways. The minor differences between various cell strains, and the major differences between cell cultures and the whole animal, discussed.

APOENZYME - COENZYME RELATIONSHIPS AS A TOOL TO ASSESS VITAMIN ADEQUACY, Dr. Myron Brin, State University of New York: Two enzymes, available from blood, have been shown to be depressed in activity in specific vitamin deficiencies, namely, transketolase in thiamine deficiency, and transaminase in pyridoxine deficiency. The possible use of these relationships as an evaluation of subclinical deficiency states at the functional cellular level and as these relate to the nutrition of the whole organism, discussed.

TEXAS

(Continued from page 1)

Similar was the report on Cornell work indicating that an unidentified nutrient of vitamin-like nature may be involved in the growth stimulating effect of certain fats. This work with fats also gets into the timely topic of the use of heat-treated full-fat soybeans.

- Still other reports got into possible tranquilizer uses and the status of coccidiostats.
- New information was presented, too, on such things as protein levels in laying rations and the use of higher calcium levels and other means of improving egg shell quality.
- Another report showed how energy nutrition has reached a particularly interesting stage, with new concepts of basic relationships in the making.
- Of interest, too, were reports on new studies of broiler pigmentation, evaluation of fats and methionine additions to rations.
- Both suggestions and new problems related to disease control also were brought out.

Summaries of poultry nutrition talks follow:

PRESENT STATUS OF UNIDENTIFIED GROWTH FACTORS—Dr. J. R. Couch of Texas A&M reviewed progress in the Texas laboratory in isolating a new factor or vitamin through fractionation of a crude feed ingredient—distillers dried solubles has been used in this continuing work.

Meanwhile, in noting practical applications, Dr. Couch said he feels strongly that there still are compounds or factors that are yet to be identified and fractionated, and he cited reports indicating there are at least three unidentified factors of importance in formulation of chicken and turkey feeds, particularly for growing stock—the "whey," "fish" and "alfalfa" factors. He also mentioned the Cornell work suggesting the presence of a factor in unsaturated fats.

"It may be possible," he said, "that when and if the compound in question is isolated, identified and synthesized or produced by fermentation, it will be found that there is only one new vitamin which has been designated by three different factor names. Certain information indicates this may be true, although a differentiation of the factors has been illustrated in many reports on chick and poult growth studies."

Dr. Couch noted that a number of mineral elements have been shown to account for some of the growth-promoting activity of feed supplements, but that there still are minerals to be discovered for growth, egg production, hatchability and fertility.

Despite mineral discoveries, he said, it is still apparent that there are some unidentified components in natural feedstuffs, presumably organic, which stimulate growth.

Outlining progress in Texas work on fractionation of distillers dried solubles, he noted that a fraction insoluble in isopropanol has produced a consistent growth response of 7 to 9%. A response has been obtained from the isopropanol insoluble component at a level of 2½ gm. per ton. The fraction represents a concentration, in terms of the original distillers dried solubles, in the order of 40,000 to 1.

After discussing other aspects of this work, Dr. Couch said it is apparent at any rate that there is a factor in distillers dried solubles in extremely low concentration which is required for maximum growth of chicks and poults.

He also cited evidence that "we are getting into the idea of unknown factors for laying hens." Dr. Couch noted when corn and soybean meal are included in growing birds' diets, after they have been on synthetic diets, there is an increase in gain. Also, with laying birds, going from sugar to corn as the carbohydrate source results in improvements, in some cases "dramatic," in egg production, fertility, hatchability and egg size. Soybean meal also has been shown to have some of these effects. Dr. Couch said this work may show why it is difficult to improve production, hatchability and fertility results by additions to simple corn-soy diets. He also mentioned that the research shows corn increased gizzard weight.

FATS IN POULTRY NUTRITION, WITH EMPHASIS ON SOME SPECIAL PROPERTIES — A discussion of this subject by Dr. F. W. Hill—formerly at Cornell University and now head of the University of California poultry department—pointed out the finding that certain fats have growth stimulating properties which may involve an unidentified nutrient. Cornell research in this field has involved work with unextracted soybeans; this has shown that dehulled flaked, full-fat beans, properly heat treated, as a source of soybean oil, stimulate growth.

Dr. Hill noted that the major contribution of fats is energy, and he presented information on metabolizable energy values. Fluid vegetable fats and lard, he said, are well utilized, while pure beef tallow is substantially lower in energy content. The utilization of more difficultly digested fat tends to improve with age.

Discussing essential fatty acids, he said the essential fatty acid requirement is apparently quite low, is known to vary with other dietary factors and may possibly be of practical significance under some conditions.

Dr. Hill gave considerable attention to special effects of fats resulting in improved growth and efficiency, and not attributable directly to any known component or property of fats. He cited studies in which marked growth stimulating effects have been obtained from addition of fat to purified laboratory-type diets. In Cornell work, maximum stimulation has required a level approximating 10% added fat. The most effective fats which have been studied include corn oil, soybean oil and cottonseed oil. There is no direct relationship between performance of the various fats and their energy values, suggesting that some other property is responsible. It is possible, said Dr. Hill, that an unidentified nutrient of vitamin-like nature may be involved.

Growth stimulation with fat has been obtained with practical broiler rations based largely on corn and soybean meal. Including 7.5% soybean oil in such a ration improved growth rate by 8% and reduced feed cost per pound of broiler. Similar improvement was obtained with a white grease.

The effectiveness of soybean oil suggested the possibility that ground heat-treated soybeans might be used in practical rations to supply both protein and soybean oil. However, the ground beans were not effective as a source of oil; the energy value was shown to be not as good as would be expected from knowledge of the value of soybean meal and soybean oil. This has been found to be due to poor utilization of soybean oil in ground heat-treated beans.

In more recent work, Dr. Hill said, it has been found that use of dehulled flaked, full-fat soybeans, properly heat treated, is effective as a source of soybean oil for achieving growth stimulation in practical broiler rations.

He said the oil and flakes both improved growth, although feed efficiency was not as good on flakes.

While the practical implications of all of the findings on fats are not yet clear, there appear to be good possibilities in using highly digestible fats. Also, new techniques in soybean processing may develop.

INFLUENCE OF RESERPINE IN STRESS OF CHICKENS AND TURKEYS—Dr. G. B. Belloff, CIBA Pharmaceutical Products, Inc., Summit, N.J., reviewed some of the experiment station research findings on the use of reserpine as a stress ameliorating agent for poultry.

"Since stresses are many and the intensity variable, the benefits derived from use of Serpasil (reserpine CIBA) will be related to the force of the stress imposed upon the bird," Dr. Belloff said. "The real problem is to determine which of the stresses will be predictably influenced by the use of Serpasil . . . There is a steadily growing body of evidence that sheds considerable light on the problem."

The available evidence, he said, indicates that reserpine protects against thermal stress, crowding and social order adjustments.

"The anti-stress activity of reserpine is reflected in improved egg quality, increased egg weight, increased egg shell thickness, reduction in broken and checked eggs, better production and feed conversion in broilers and laying birds and the control of aortic rupture in turkeys."

Before thus summarizing the work with reserpine, Dr. Belloff cited findings on heat stress by California, New Jersey and other researchers. For example, under conditions of acute heat stress, reserpine was shown to reduce mortality and afford protection against reductions in egg production and shell quality. He also cited work with broilers and turkeys. In the case of turkeys, he pointed to use of reserpine in control of aortic rupture.

"It is our belief," said Dr. Belloff, "that the sum total of all the beneficial effects resulting from the anti-stress protection afforded by reserpine will result in broad applications in the poultry field."

PRESENT STATUS OF COCCIDIOSTATS—"Confusion exists in the field of coccidiostats" due in part to different concepts as to methods of testing used for evaluating the drugs and in part to development of resistant strains of coccidia, said Dr. David F. Green, Merck & Co., Inc., Rahway, N.J.

Dr. Green gave four criteria for judging an anticoccidial agent: "In essence, a drug that (1) prevents mortality, (2) maintains normal weight gains, (3) inhibits lesions (gross tissue damage), and (4) strongly suppresses oocyst production, may be classified as a coccidiocide rather than a coccidiostat."

Some E. tenella strains of coccidia, he said, have developed drug resistance against sulfa drugs so that treatment of outbreaks of cecal coccidiosis cannot be as effectively controlled today as when sulfa drugs were first used. Furthermore, nature appears to guard zealously against eradication of a species in any short interval.

"Current tests," he said, "show that nicarbazin is the only commercially available product that approaches the requirement of a coccidiocide." In addition, he said, it shows such activity against the four species used for testing—E. tenella, E. necatrix, E. acervulina and E. maxima, singly or in combinaton, at the recommended broiler use level of .0125%.

Dr. Green went on to say Glycamide "has been found to be extremely potent against E. necatrix, highly active against E. tenella, somewhat weaker against E. acervulina and relatively inactive against E. maxima." Sulfaquinoxaline, he said, shows a somewhat different spectrum of activity.

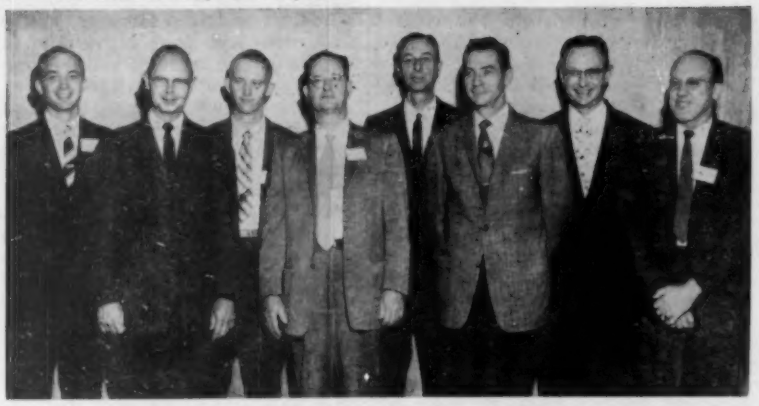
In discussing drug performance, he said "it becomes impossible for a feed manufacturer or a drug manufacturer to predict exactly which drugs will be effective on any specific farm. The grower may no longer expect the practically complete absence of coccidiosis, such as occurred following the introduction of nicarbazin."

Some persons, Dr. Green indicated, have held that laboratory criteria are not the proper ones to use, and they say that field testing is a preferred method of study. However, he added, examinations of numbers of oocysts in the litter show that drugs that are weak in the laboratory are also comparatively ineffective in preventing a build-up of oocysts in the litter. "Following the biology of coccidia by weekly oocyst counts is a new procedure and many pathologists are not yet familiar with the information added by such titrations," Dr. Green said.

Dr. Green also emphasized the importance of proper flock management in controlling coccidiosis.

"One might add," he said, "that it has so far been impossible to find a drug that is absolutely perfect."

EFFECTS OF CALORIC RESTRICTION IN GROWING REPLACEMENT BIRDS AND PROTEIN AND ENERGY FOR LAYERS—Dr. J. H. Quisenberry of Texas A&M discussed two subjects—(1) some effects of season of hatch and caloric restriction during the growing



TEXAS SPEAKERS—Here are some of the 20 speakers on the program at the Texas Nutrition Conference. The scientists pictured here, plus others, dealt primarily with poultry nutrition. Left to right are: W. P. Williams, Jr., Texas A&M College; Dr. F. W. Hill, formerly at Cornell University and now head of the University of California poultry department; R. E. Davies, Texas A&M; Dr. D. F. Green, Merck & Co., Inc., Rahway, N.J.; Dr. M. W. Pasvogel, Peter Hand Foundation, Chicago; Dr. A. I. Flowers, Texas A&M; Dr. J. R. Couch, Texas A&M, conference chairman; Dr. J. H. Quisenberry, Texas A&M poultry science department head.

period on laying house performance of a commercial egg production stock and (2) preliminary findings in current work on protein and energy for layers.

He outlined findings in studies of three programs for replacement pullets—full feeding, limited feeding and high-fiber feeding. A number of feeding programs can be relied upon to produce good pullets, he said, with individual preferences and small savings in feed costs being determining factors for a particular situation. For light breed egg production stocks, he said he would probably choose the high-fiber program for colony cage rearing; limited feeding for spring and summer range rearing; and low-fiber, full-feeding for confinement floor pens and for fall and winter brooding on the range.

Dr. Quisenberry also presented some results of the first six months of a current study involving protein levels of 13, 15 and 17% for layers. The study also involves use of different levels of added fat (1% and 5%) and an increase in fat level at certain points in the laying period.

The preliminary results showed that egg production, feed efficiency, egg size and livability all were best at the 17% protein level. The 15% level was intermediate. The 13% protein diet, it was indicated, is deficient in the amino acids lysine and methionine. When energy is increased, the protein deficiency is accentuated.

Under all conditions, the data showed, egg production was considerably higher with the 17% protein diet than with the lower protein level.

Information on results of the fat treatments, as well as more data on protein level results, will be available later.

FACTORS AFFECTING EGG SHELL QUALITY—Dr. Myron W. Pasvogel, Peter Hand Foundation, Chicago, said that providing higher calcium levels in the diet of hens offers the most promise in improving egg shell quality.

Dr. Pasvogel outlined factors which may influence the egg shell and told of various ways in which attempts have been made to overcome shell deteriorations.

He listed possible means of improving shell quality:

1. Improvements through selective breeding.
2. Provide a cool environment if possible.
3. Avoid drugs that may produce thin shells.
4. Provide adequate vitamin levels.
5. Provide higher calcium levels. In this connection, Idaho work showing better quality with calcium levels of 3% and up was cited.
6. Investigate possibilities in use of ascorbic acid, which is believed to stimulate the thyroid and aid in production of thicker, stronger shells.

It also was noted that tranquilizers tend to alleviate heat stress, and this may be accompanied by greater feed consumption and greater shell thickness. More work on this is needed, Dr. Pasvogel said. The chief value in antibiotics, he said, is in production and not in shell quality. Thyroprotein has not helped production but may help shell quality.

Dr. Pasvogel mentioned that recent Arizona studies have shown that the decrease in shell weight during hot weather may be associated with certain chemical changes in composition and with phosphorus content of the shell.

ENERGY VALUES OF FEEDSTUFFS AND THE ENERGY NUTRITION OF POULTRY—In a second talk at the conference, Dr. F. W. Hill pointed out that research and application in the field of energy nutrition of poultry have reached a particularly interesting stage. The accuracy of information on which formulations must be based is being steadily improved, and new concepts of the basic relationships between nutrient balance, food intake, efficiency of production and optimal health are in the making.

Dr. Hill devoted considerable attention to information developed at Cornell on metabolizable energy values of feedstuffs for chickens. He expained how it is the most precise and generally useful measure of energy input for poultry. And he presented evidence that metabolizable energy content is a useful indicator of ration performance.

With two exceptions, studies with growing chicks have shown clearly that tissue gain expressed in energy units is related closely in a straight-line fashion to the metabolizable energy consumption, largely independent of differences in nutrient balance. The exceptions occurred when either extremely high protein levels were used or when high levels of particular growth stimulating fats were employed.

In general, Dr. Hill said, animals, including poultry, regulate food intake primarily to satisfy energy requirements. However, there are certain exceptions. Connecticut work has shown that heavy breed hens of broiler type strains greatly overconsume energy in relation to body needs when fed rations high in energy containing liberal amounts of added fat. In Cornell studies on the ability of layers to respond to diet change, it was found that when a sudden shift was made from a moderately high energy ration to one very high in fat content, there was a marked increase in calorie intake accompanied by striking body weight increase.

BROILER PIGMENTATION—Woodie P. Williams of Texas A&M presented an extensive review of information on pigmentation and then outlined results of a study of the effect of certain antioxidants, calorie-protein ratio of the diet, certain carotenoid-containing feedstuffs and various fats and oils on pigmentation of broilers.

Summarizing the findings, he reported that the antioxidants BHT, DPPD, Santoquin and vitamin E were without effect on pigmentation, serum carotenoids, liver vitamin A, feed conversion or body weight, except that vitamin E at a level of 20,000 I.U. per ton tended to increase liver vitamin A. Levels of BHT up to and including .05% did not produce any toxic effects on any of the criteria studied.

Carotenoid utilization by chicks receiving various fats and oils was dependent upon the particular properties of the fat or oil fed. The researcher said pigmentation tended to decrease as degree of unsaturation increased, except with poultry oil.

Finishing rations when fed during the last two weeks with a C/P ratio of 50:1 did not improve pigmentation but did tend to increase body weight.

The addition of feedstuffs containing xanthophylls to broiler diets during the latter weeks of growth proved to be advantageous and comparable to the feeding of feedstuffs containing xanthophylls during the entire growing period.

The hydroxy-carotenoid content of corn gluten meal was found to increase as the percent of crude protein increased, with 60% protein corn gluten meal being approximately equal to 20% protein dehydrated alfalfa meal for pigmentation of broilers, Mr. Williams said.

EVALUATION OF FATS OF DIFFERENT ORIGIN IN POULTRY FEED FORMULATIONS—R. E. Davies, Texas A&M poultry scientist, discussed nutritional and economic aspects of the use of fats and described experiments in which a number of vegetable and animal fats were incorporated into a practical-type broiler diet at levels of 5 to 20%.

Mr. Davies said that the level of fat to be added to a commercial feed will depend on the price (per unit of available energy), the price of soybean meal and grains, the market price for meat and eggs, improvement in feed efficiency to be expected and, in the case of broilers, the source of xanthophyll.

At the present time, he said, the most economical levels appear to be 2.5-3.0% added fat in layer feeds and broiler starters and up to 5.0% in broiler finishers.

"Because of the greater digestibility," he said, "oils, and particularly vegetable oils, have a higher feed value per pound than does animal fat, and the oils can be used economically when the price is as much as 15% greater than that of animal fat."

Mr. Davies said the digestibility of vegetable oils in the Texas experiments averaged 15% higher than that of animal fat. This means, he said, that if animal fat is selling for 7.5¢ lb., the value of vegetable oil would be about 8.6¢ lb. as a supplementary energy source. Poultry oil would be worth 8.5¢. Mr. Davies said the composition of the animal fat used in the studies is not known, but if it is assumed that the product is composed of mixed tallows, the data agree with those of Cornell workers. They found that metabolizable energy content of oils averaged 33% greater than that of beef tallow but only slightly greater than that of pork tallow. This also suggests that the value of a fat may depend on the animal from which it comes.

As more information becomes available, said Mr. Davies, the feed manufacturer will be better advised to purchase on the basis of price per unit of available energy rather than quoted price per pound of fat.

RECENT EXPERIMENTS WITH METHIONINE AS AN ADDITIVE TO BROILER FEEDS—A review of literature indicates a certain amount of variability in regard to the response obtained from addition of methionine to the diet of the growing chick, said Dr. A. A. Camp, superintendent of the Texas station at Gonzales. Therefore, he said, a series of five floor-pen, broiler feeding trials was conducted over a period of approximately a year. Some 12,000 chicks were involved.

The experimental variables were added methionine at the .05 and .10% level with and without hydrolyzed feather meal substituted into the diet at levels of 2½ or 5%. Two of the five tests were carried out during cool or cold weather and three during warm or hot weather.

"These data indicated," said Dr. Camp, "that under the conditions of these tests, methionine added at either .05 or .10% level to a diet containing no hydrolyzed feather meal fed to growing chicks during cold weather has no significant effect on either growth rate or feed conversion but does exert a favorable response when fed during hot weather.

"Hydrolyzed feather meal substituted into the diet at the 2½% level and fed either alone or in combination with the .05% level of added methionine had no significant effect on rate of gain or feed conversion when fed during cool or warm weather. However, addition of methionine at the .10% level to a diet containing 2½% hydrolyzed feather meal brought about a highly significant increase in growth rate and a marked improvement in feed conversion when fed during either cool or warm weaher.

"Hydrolyzed feather meal substituted into the diet at the 5% level and fed either alone or in combination with either level of added methionine resulted in a highly significant decrease in rate of gain and feed efficiency when fed during cool weather but exerted no effect when fed during warm weather."

APLASTIC ANEMIA SYNDROME IN CHICKENS—Dr. Lloyd M. Reedy, a veterinarian in private practice at Dallas, told of the occurrence and symptoms in chickens of a condition called aplastic anemia. No one treatment has routinely caused a favorable response. Stimulation of feed intake is perhaps the most important step. Avoiding harsh medications is also important. Hematinics such as liver solubles, fish solubles, B complex vitamins and trace minerals seem to help. Recovery is usually prolonged and relapses frequent.

Some unknown factor, Dr. Reedy said, depresses the activity of the bone marrow. Some evidence makes one suspicious of a contagious agent. There have been observations of a favorable response to a combination of fungicides and antibiotics.

Efforts to transmit or reproduce the disease have so far been unsuccessful. And in the field, in many cases, untreated controls responded as quickly, if not more so, than treated groups. Efforts to prevent the disease by feeding hematinic agents have proven unsuccessful.

IMMUNIZATION PROGRAM FOR RESPIRATORY DISEASES OF POULTRY—Dr. A. I. Flowers, Texas A&M veterinary scientist, said that improper immunization procedures for Newcastle and infectious bronchitis are responsible for high losses from CRD. Experimental immunization procedures, he said, have made it possible to overcome some of the problems.

Dr. Flowers said there is evidence that the B_1 type Newcastle vaccine does not protect the respiratory tract and that previously immunized birds do develop respiratory symptoms and go out of production when exposed to field strains of the virus. Recent reports, he continued, indicate there are several different strains of infectious bronchitis but that none of the commercial vaccines now available provide protection against more than one strain.

Summing up his advice to the feed men, he noted that vaccines have limitations; said that he prefers, when possible, to vaccinate for one disease at a time; cited the importance of a good diet; indicated that restricted feeding is fine but that too much restriction is dangerous.

MARKETS

(Continued from page 2)

were anticipating any further boost in the bushelage—and they certainly were unprepared for the Oct. 1 estimate that pushed the total prospect up to within a very short distance of the 4,500 million bushel mark. Demand for commercial feeds in the country is definitely moderate, and so far there has been no evidence of any seasonal broadening tendency in that respect.

The combination of higher prices for commercial feed on one hand and a tremendous surplus of his own corn has been anything but conducive to a broader demand from the farmer.

Feed manufacturers are generally operating on a four to five day week and it seems to be a general condition among them to be keeping up nicely with their orders and not having much of anything in the way of unfilled backlogs.

South Central

Feed mill representatives gave varying reports on their business this week. Some report as good sales volume as they had the week before but the majority say that sales have slackened off again. On the whole, business is not up to expectations. Only a few plants are on a five day basis. The average is a skimpy four and one half days.

Several spokesmen commented on the fact that hog feeds are the only item on their price lists that are moving in what they consider normal volume. For one reason or another, all the rest of the feeds are not receiving much attention from buyers. The reasons most often mentioned were that the turkey feed season was just about over and most raisers have enough feed on hand to carry them through until the birds are sold. Poultry numbers have been cut back so far this year that there just isn't as much demand for egg mash as there was a year ago. And, although a fair amount of cattle feed has been booked, deliveries against these bookings probably will remain small for another month or so. Under these circumstances, some mixers are showing concern over near term prospects.

Ohio Valley

The rainfall deficiency which has plagued the Ohio Valley during the last three months was considerably eased this week when the area was showered with more than two inches of rain. This aided considerably in replenishing farm ponds and cisterns, although it came too late to be of any material aid to pasturage. The cold rains this week are looked upon as the forerunner of considerably colder weather and frost, both of which have been reported in numerous areas immediately to the north.

The dull market for formula feeds reported during recent weeks remained at about the same level this week, because of the more than ample supplies of farm crops that continue to be available. Area formula feed manufacturers remain of the opinion that no material improvement in business is to be anticipated until sharply colder weather arrives and present large surpluses of corn and feeds have been worked off to some extent.

Mountain States

Cattle feed business is taking a sharp turn upward. The reason for this is that there are many more cattle moving into feed lots than had been anticipated. Cattle feed volume is a good deal over last week and it is a little bit better than last year at this time.

Turkey feed business is getting a little bit less each week because all dressing plants are in full operation now.

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Pacific Northwest

Pacific Northwest feed ingredient prices worked higher on the average during the week's feedstuffs trading with oil seed meals leading the advance at Portland and Seattle.

With the rainy weather prevailing in the Pacific Northwest, formula feed sales were good and dairy mashes moved well despite good fall pastures.

Soybean meal listings advanced $1 ton and displayed a firm undertone at the close. Copra meal jumped $5 ton despite limited local usage, and cottonseed meal quotes gained $2 in front of good demand. Linseed meal offerings were light and prices gained $2 above last week. Alfalfa hay prices held mostly unchanged within a wide range, depending upon quality and district where grown.

JAMES FLINN HOSPITALIZED

WAUKEGAN, ILL.—James M. Flinn, president, Blatchford Calf Meal Co., underwent surgery in Evanston (Ill.) Hospital last week. He is convalescing satisfactorily.

Strength Continues In Oil Meal Futures

MEMPHIS, TENN. — Oilseed meal futures generally continued to be very strong on the Memphis Board of Trade this week in view of good cash oil meal business and inclement weather halting the soybean harvest in the Midwest.

Oil meal followed soybean and soybean oil futures in the advance.

Midway in the period, profit-taking, influenced by some improvement in the weather, erased a portion of earlier gains in soybeans, influencing soybean oil meal to go lower.

Exporter activity in cash cottonseed oil meal was on a sufficiently broad scale part of the period to bring a substantial rise in this futures market. Profit-taking appeared at the extreme of the advance. Public interest continues to expand in the cottonseed oil meal market, and one pit observer expressed the view that this market will soon regain its former place as a favored speculative trading medium.

Memphis basis soybean oil meal closed Oct. 13 50¢@$1 ton higher than on Oct. 6. Unrestricted soybean oil meal was 75¢ lower to $3.25 higher. Bulk solvent cottonseed oil meal went 50¢@$3.75 higher.

Trading included 7,300 tons of bulk solvent cottonseed oil meal and 300 tons of unrestricted soybean oil meal.

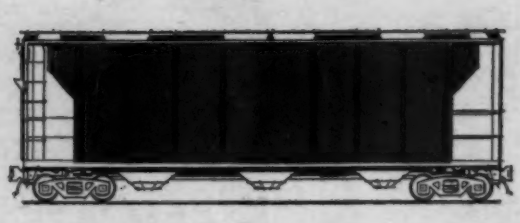
Arizona Grain, Seed Group Plans Banquet

PHOENIX, ARIZ. — The annual banquet of the Arizona Grain & Seed Assn. is planned for Nov. 19 at the Hotel Westward Ho, in Phoenix. Hayden C. Hayden, association secretary, said there will be no formal convention this year, but that all grain and seedsmen are welcome to attend the banquet.

Charles J. Kaup Dies

WEST POINT, NEB.—Charles J. Kaup, president of West Point (Neb.) Feed Products Co., died recently following the Nebraska Livestock Feeders meeting at Norfolk, Neb.

CAR



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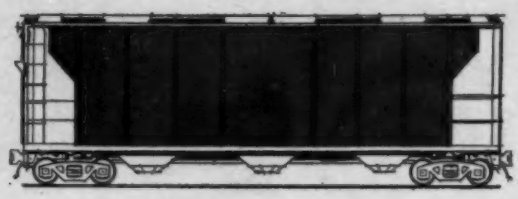

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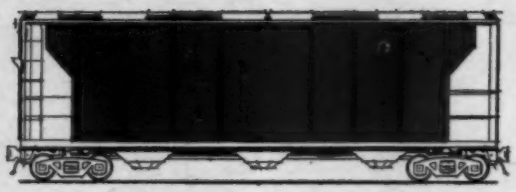

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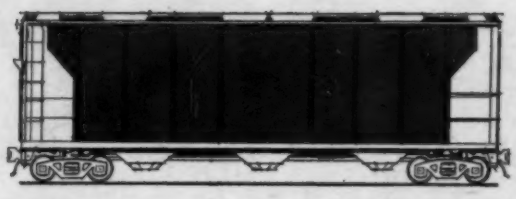

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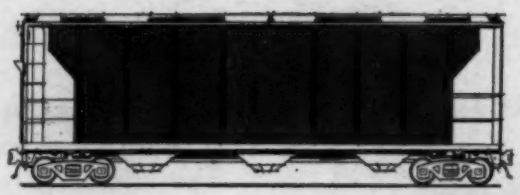

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